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THE VIRILIZING SYNDROMES.[1]

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IN the last decade considerable progress has been made in determining the metabolic disturbances responsible for virilism in females. In some of these conditions, such as adrenal hyperplasia, this progress has resulted in the institution of rational and effective treatment. In others, such as "idiopathic" hirsutism, despite some advances in knowledge, therapeutic success still escapes the clinician. The object of this paper is to review some of the more important recent developments in this field.

In dealing clinically with the problem of virilization, it may become obvious while taking the history or during physical examination that the patient has a history of congenital adrenal hyperplasia or signs suggestive of Cushing's syndrome. More often the history and physical examination will reveal little other than some degree of hirsutism. In these circumstances the differential diagnosis will lean very heavily, and sometimes completely, on assessment of the patient's production of androgen, cortisol and other steroid hormones. Because of this, it is important briefly to discuss some of the assay methods employed to determine the patient's hormonal environment.

In this context, the production of ovarian and adrenal steroid hormones is of prime importance. In the female, œstrogen and progesterone, and probably androgen, have a dual origin from both the ovary and the adrenal. Eleven œstrogens have now been isolated from urine (Greene and Touchstone, 1959), but of these only three (œstrone, œstradiol and œstriol) can be quantitatively determined in urine. A method described by Brown (1955) and modified by Brown, Bulbrook and Greenwood (1957) satisfies reliability criteria for urinary determination.

Pregnanediol (pregnane-3-alpha,20-alpha-diol) is the only urinary metabolite of progesterone that can be assayed accurately, the most reliable method being that of Klopper, Michie and Brown (1955).

The adrenal contribution is more complex. In addition to progesterone and œstrogens, androgens and glucocortocoids must be considered.

Figure II shows an outline of some of the more important pathways in adrenocortical biosynthesis. Aldosterone has not been included, because it plays little

[1] Based on papers read at the Royal North Shore Hospital of Sydney, May, 1960, and in the Advanced Course in Dermatology, Sydney, October, 1960.

part in the pathogenesis of virilization. The main pathways of synthesis have been fully investigated, but many gaps remain.

Progesterone is of central importance in adrenocortical biosynthesis (Hechter *et alii*, 1951). Cortisol (hydrocortisone) and corticosterone are quantitatively the most important glucocorticoids identified with certainty in human adrenal venous blood, and it will be seen that 17-hydroxyprogesterone is an important intermediary in the synthesis of cortisol, subsequent steps being hydroxylation at C-21 and C-11. It was assumed that hydroxylation had to proceed in this strict sequence — 17, 21, 11 — but Brownie, Grant and Davidson (1954) have provided evidence that 11 hydroxylation can occur first, and this may be of importance in such conditions as adrenal hyperplasia, in which large amounts of pregnanetriolone appear in the urine (Grant, 1960).

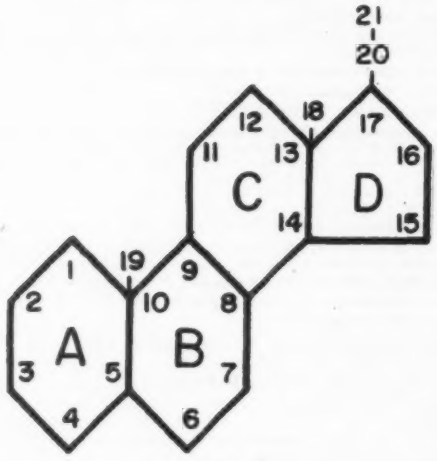

FIGURE I.

Key to numbering of carbon atoms in the steroid nucleus. This is included for reference when specific carbon atoms are referred to in the text.

Short (1960) has isolated androgenic steroids from adrenal venous blood, and of these androstenedione is the most active biologically.

The lower line in Figure II indicates some of the more important excretory products found in urine. Pregnanetriol is a major excretory product of 17-hydroxyprogesterone, just as pregnanediol is of progesterone.

In women, the bulk of urinary neutral 17-ketosteroids is of adrenal origin. These may arise in two ways — some from peripheral removal of the side chain in C21 steroids such as cortisol, others from C19 steroids secreted by the adrenal cortex itself, such as androstenedione. In general terms, the former will be substituted at C-11 with either an oxo or hydroxyl group and are biologically weak androgens. The latter are unsubstituted at C-11, and either are themselves more androgenic or are derived from biologically active precursors. However, Fukushima *et alii* (1959) have shown that in congenital adrenal hyperplasia the bulk of 11-oxygenated 17-ketosteroids arise from C19 precursors secreted by the adrenal cortex. Any assay for neutral 17-ketosteroids will measure all urinary steroids with an oxo substitution at C-17 (with the exception of œstrogens, which have a phenolic ring A and behave as acids), but will give no clue to the biological activity of the individual components. A slight increase in a biologically potent androgen may have little or no demonstrable effect on total 17-ketosteroids, but may have important clinical effects in the patient. This is of importance in some virilizing ovarian tumours, as will be discussed later. The normal range of 17-ketosteroids in women in the age group 20 to 40 years is 7 to 12 mg. per 24 hours, with upper limits of 20 mg. and lower limits of 3 mg. per 24 hours (Loraine, 1958).

Many methods have been developed for the assay of cortisol and its metabolites. The best for routine use is one or other of those developed by Norymberski and his colleagues, either for 17-ketogenic steroids (Norymberski *et alii*, 1953) or total 17-hydroxysteroids (Appleby *et alii*, 1955). The normal range of 17-ketogenic steroids in adult women is 4·6 to 13·4 mg. per 24 hours (Loraine, 1958*a*). But, particularly when one is dealing with virilizing conditions, there are limitations in both of these methods that should be realized, or serious error in interpretation of results may occur. It will be seen that both methods will measure steroids with the 17-20 dihydroxy-20 methyl side chain (Figure III), a side chain that is common to both pregnanetriol and pregnanetriolone (Figure IV).

If these steroids are present in large quantities, the result for 17-ketogenic steroids or total 17-hydroxysteroids may be very high even though production of cortisol is normal or low. Prunty *et alii* (1958) have pointed out that since the chromogenicity of pregnanetriol after oxidation is approximately 1, a quantitative estimate of cortisol metabolites may be obtained by subtracting the value for pregnanetriol from the figure for ketogenic steroids.

The last important assays to be discussed are those for pregnanetriol (pregnane-3-alpha, 17-alpha, 20-alpha-triol) and pregnanetriolone (pregnane-3-alpha, 17-alpha, 20-alpha-triol-11-one). Pregnanetriol was first isolated from urine by Butler and Marrian (1937), and is present in the urine of normal individuals (Cox and Marrian, 1953) in quantities up to 2 mg. per 24 hours (Cox and Finkelstein, 1957; Fotherby and Love, 1960).

Pregnanetriolone was isolated from the urine by Finkelstein *et alii* (1953), and there is now ample confirmation of its presence in the urine of individuals with adrenal hyperplasia (Cox and Finkelstein, 1957; Bush *et alii*, 1957; Finkelstein, 1959; Cox, 1960) and its presence has been recorded in patients with Stein-Leventhal syndrome (Shearman *et alii*, 1961). This steroid has not been detected in the urine of normal individuals by the use of specific methods capable of detecting as little as 2μg. per 24 hours (Finkelstein, 1959).

Of several methods described, those of Cox and Finkelstein (1957) and of Cox (1959) appear to be the most useful, as both pregnanetriol and pregnanetriolone can be assayed by the use of the one extract. Additional information about other related steroids may also be obtained.

Clinical Classification.

The features of the various syndromes are most conveniently considered under the following headings: (i) iatrogenic virilization; (ii) congenital non-adrenal virilization; (iii) masculinizing tumours of the ovary; (iv) adrenal hyperplasia; (v) adrenal tumour; (vi) Stein-Leventhal syndrome; (vii) "idiopathic" hirsutism. Classifications (iv) and (v) may produce either virilization or Cushing's syndrome (*vide infra*).

Iatrogenic Virilization.

Iatrogenic virilization may occur during treatment with androgens or adrenocortical hormones. It should be emphasized that most of these cases are unnecessary and avoidable. There are few absolute indications to use androgens in the treatment of women. If they are used for any of the more arguable indications, then the dose should not exceed 200 to 250 mg. of methyl testosterone by mouth in any one month. In the writer's experience, even this amount will cause acne in susceptible women.

Congenital Non-Adrenal Virilization.

This condition has received widespread attention in the last two years. Most genetic females born with

masculinized external genitals are examples of congenital adrenal hyperplasia (*vide infra*), but there are cases in which no hyperplasia can be demonstrated. Until recently, reports of this type were excessively rare, and were usually associated with the administration of androgens during pregnancy or, as in Bretnall's case (Bretnall, 1945), with a functioning arrhenoblastoma during pregnancy. These cases have been fully reviewed by Jones (1958).

More recently, cases have been described in which the mother received progestational therapy for threatened and habitual abortion (Wilkins *et alii*, 1958; Grumbach *et alii*, 1959). The majority of these cases have occurred after treatment with the synthetic progestogens, ethisterone (marketed here under a variety of names) norethisterone ("Primolut N") and nor-ethynodrel ("Enavid", received by one patient). There can be no doubt that these orally effective synthetic steroids may exert a virilizing action on the female fœtus, but it should be emphasized that they display no such action in the adult.

The degree of masculinization in the fœtus can equal that seen in the adreno-genital syndrome, and it is from this condition that distinction must be made. The need for immediate diagnosis is paramount, so the fact that the virilization of adrenal hyperplasia is progressive and that of non-adrenal forms is static is of no clinical assistance. The diagnosis is best made by finding normal urinary 17-ketosteroid excretion together with a chromatin-positive buccal smear.

The reason for these changes is unknown. Certainly this unfortunate complication is not seen in all female infants born to women who receive these preparations, and the position is not made clearer by the occasional development of this condition in pregnancies in which no steroids have been administered and in others in which stilbœstrol alone was given (Bongiovanni *et alii*, 1959). Grumbach *et alii* (1959) have suggested that the reason may lie in increased sensitivity of fœtal end organs, together with differing fœtal metabolism of the steroid, similar to that known to occur with cortisol (Bongiovanni *et alii*, 1958).

There is still no adequate proof that progestational therapy will significantly increase the fœtal salvage rate in patients who suffer from habitual abortion. There is ample evidence that the majority of abortions in the first trimester are associated with a demonstrable fall in pregnanediol excretion (Borth and de Watteville, 1952; Rawlings and Kreiger, 1958; Shearman, 1959, 1960). Many people have assumed that the two findings are causally associated, but this remains a speculative assumption. If it is thought that progestational substances are needed in pregnancy, then the preparation of choice is 17-hydroxyprogesterone caproate ("Proluton Depot"). No instance of a masculinized female infant has been recorded with this substance, nor does it display any androgenic activity in experimental animals (Suchowsky and Junkmann, 1960).

Masculinizing Tumours of the Ovary.

These tumours are excessively rare, and because of this little is known of their histogenesis or hormonal production. The clinical picture is usually one of initial defeminization (amenorrhœa and breast atrophy) followed by virilization (hirsutism, deepening voice, clitoral enlargement and temporal recession of hair).

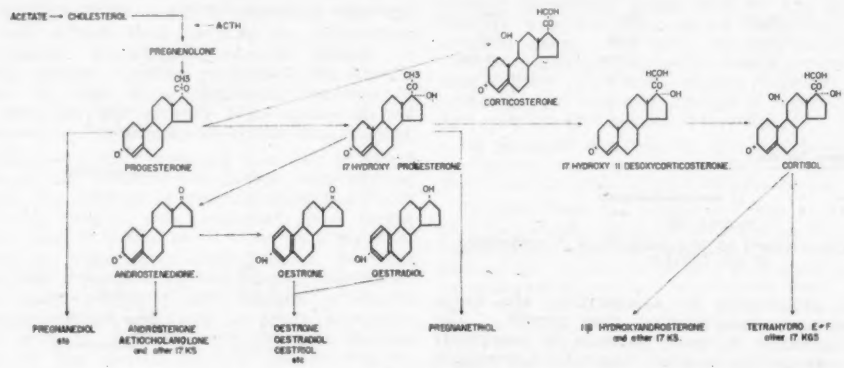

FIGURE II.
Some steps in the biosynthesis and metabolism of adrenal steroids.

In some cases the 17-ketosteroid excretion is normal (Wiele, 1960), but in others there may be considerable elevation (Jones, 1958*a*). This variation is due to differing biological activity of the particular androgen produced by the tumour. As was mentioned previously, a slight increase in the secretion of a biologically potent androgen such as testosterone may have little effect on the total urinary 17-ketosteroid excretion while at the same time having important biological effects on the patient (Short, 1960).

If the tumour is large enough to be palpable, diagnosis should not be difficult; if it is not, then distinction must be made from adrenal hyperplasia, which should be clear after a cortisone suppression test, and from adrenal tumour after perirenal air studies or laparotomy.

Adrenal Hyperplasia.

The most familiar form of adrenal hyperplasia is the adreno-genital syndrome, which is usually manifest at birth. The condition should be suspected in any infant born with abnormal external genitals. If the condition is unrecognized and untreated, and provided that the infant does not die from electrolyte disturbance, progressive virilization will occur. In one infant seen recently at this unit, pubic hair began to grow at the age of 18 months, but usually it does not appear until later in life. Body, axillary and facial hair develops progressively. It is usually accepted that without treatment menstruation does not occur, but that this is not invariable is demonstrated by the following details of one patient recently examined.

The patient, aged 32 years, attended the endocrine clinic of King George V Memorial Hospital complaining of hirsutism, infertility and progressive male-type baldness. Abnormal genitals had been noticed in childhood, and growth of pubic and axillary hair had commenced at the age of five years. Somatic growth ceased when the patient was aged 12 years, and this was followed by the development of facial hirsutism and later of pronounced temporal recession of hair. Menstruation commenced when the patient was aged nine years, and had continued regularly since then. When she was aged 19, the external genitals had been corrected surgically. Endometrial biopsy on two occasions elsewhere had shown secretory endometrium, but

the patient had not succeeded in becoming pregnant. The clitoris was 2·5 cm. long, and the blood pressure was 240/130 mm. of mercury.

During a cortisone suppression test, the 17-ketosteroid excretion fell from 25-30 to 2 mg. in 24 hours, and on maintenance therapy with prednisone it has remained between 5 and 8 mg. in 24 hours. At the same time the blood pressure has fallen to 130/80-90 mm. of mercury. Eight months after the initiation of therapy the patient became pregnant, but had a spontaneous abortion during the tenth week. She has since become pregnant again, and has been delivered of a normal male infant.

Occasionally adrenal hyperplasia may not become obvious until after puberty. In these cases hirsutism and

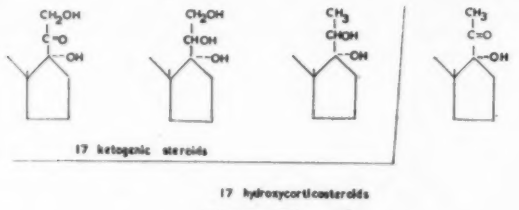

FIGURE III.

C-17 side chains assayed by the methods of Norymberski *et alii* (1953).

oligomenorrhœa progressing to amenorrhœa are usual, but normal ovulatory menstruation may persist. The biochemical disturbance in these patients is essentially similar to that seen in infants with congenital hyperplasia (Brooks *et alii*, 1960).

In this syndrome the 17-ketosteroid excretion is invariably elevated. In infants, amounts in excess of 1 mg. per day must be regarded as abnormal; in adults, 17-ketosteroid excretion in excess of 25 mg. per day is usual. Urinary 17-ketogenic steroid excretion in the resting state may be normal or low, but if large quantities of pregnanetriol and pregnanetriolone are being excreted the 17-ketogenic steroid excretion may be increased.

Urinary pregnanetriol excretion is usually increased (Bongiovanni, 1953), and in the normotensive type, pregnanetriolone has been detected in the urine on all occasions when it has been sought (Finkelstein, 1959; Cox, 1960). If elevated 17-ketosteroid excretion is found and pregnanetriolone is detected in the urine, the diagnosis of adrenal hyperplasia is virtually assured. Further confirmation can be obtained by suppressing endogenous production of adrenal androgen with cortisone. If a virilizing tumour is present, complete suppression will not follow.

The pathogenesis of this condition has become clearer since the observation by Wilkins *et alii* (1950) that cortisone would arrest the virilization. In 1951, Bartter *et alii* suggested that the primary disorder was in the synthesis of cortisol. Normally, 17-hydroxyprogesterone is converted into cortisol by hydroxylation at C-21 and then C-11. In the more common form of this syndrome there is a defect in hydroxylation at C-21. The resulting low levels of cortisol cause an increase in ACTH secretion, which stimulates both the reticular and fasciculate zones of the adrenal cortex to produce excessive amounts of œstrogen, androgen and 17-hydroxyprogesterone. The increase in circulating androgen and œstrogen inhibits secretion of pituitary gonadotrophin, so that ovarian function does not become established.

The excessive amounts of 17-hydroxyprogesterone will cause an increase in the excretion of pregnanetriol, and since 11 hydroxylation is unimpaired, the production of 21 desoxycortisol (Jailer *et alii*, 1955) will be reflected by the excretion of pregnanetriolone (Fukushima *et alii*, 1959) (Figure IV). Administration of cortisone inhibits corticotrophin, and the stimulus to production of excessive androgen is removed. This in turn is followed by increased secretion of gonadotrophin, with restoration of ovarian function in most cases.

In the less common hypertensive form of adrenal hyperplasia, Bongiovanni and Eberlein (1958) demonstrated the presence of compound S and excessive quantities of desoxycorticosterone, which appeared to be due to a defect in 11 hydroxylation (Figure V). This postulate is supported by the production of similar steroid abnormalities in subjects treated with a substance specifically inhibiting 11-beta hydroxylation (Liddle *et alii*, 1958, 1959). How-

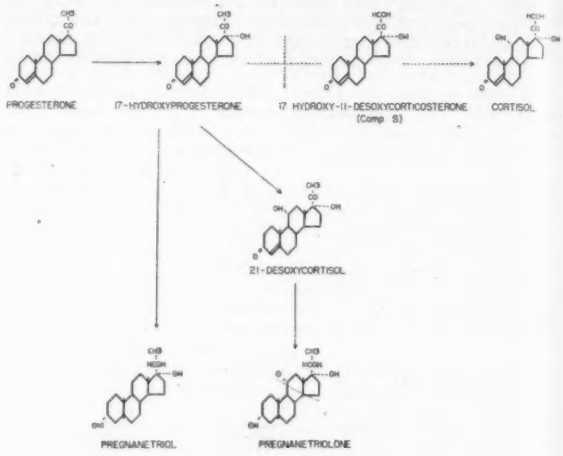

FIGURE IV.

Adrenal hyperplasia: normotensive.

ever, it has been pointed out (Cox, 1960) that simple defects in either C-21 or C-11 hydroxylation will not explain all the complexities of abnormal steroid excretion in these patients. The case described in some detail above resembled the hypertensive type of adrenal hyperplasia, yet small quantities (100μg. per 24 hours) of a steroid with

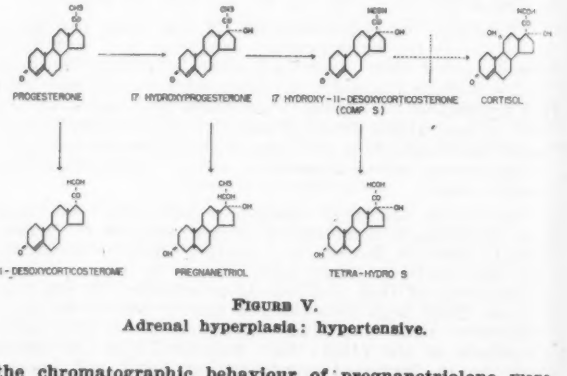

FIGURE V.

Adrenal hyperplasia: hypertensive.

the chromatographic behaviour of pregnanetriolone were isolated from the patient's urine (Cox, 1959*a*), indicating that in this particular case some degree of 11-beta hydroxylation was occurring.

Tumours of the Adrenal Cortex.

These tumours may produce a wide variety of clinical features — primary aldosteronism, Cushing's syndrome, virilization in women or gynæcomastia in men. The endocrine disturbances may be related to the area of the cortex from which the tumour arises; aldosterone is secreted by the glomerulosa, and tumours of this area will cause hypertension and potassium loss (Conn and Louis, 1956). Pure tumours of the fascicular zone will secrete excessive amounts of cortisol and corticosterone

causing Cushing's syndrome. Neoplasia of the reticularis will produce a clinical picture that varies with the age and sex of the patient and the relative amounts of androgen and œstrogen secreted. Very frequently there is considerable overlap in the clinical picture produced, particularly in the two last-mentioned groups. Some patients with Cushing's syndrome will present with virilization, whereas in others it may be minimal.

Virilizing tumours may occur at any age. In children the onset is usually with growth of axillary and pubic hair, development of acne, clitoral enlargement and deepening voice. In the adult the clinical picture may be identical with that of virilizing ovarian tumours or adrenal hyperplasia. Occasionally ovulatory menstruation may persist, but amenorrhœa is the general rule.

Urinary 17-ketosteroid excretion is increased, but the degree of increase affords little help in the differential diagnosis of adrenal hyperplasia, adrenal tumour or virilizing ovarian tumour. Cortisol production will usually be normal, but if there is a significant increase in pregnanetriol excretion the urinary 17-ketogenic steroid or 17-hydroxysteroid excretion may be higher than normal.

Cox and Finkelstein (1957) have not been able to detect pregnanetriolone in the urine of any patient with adrenal tumour, although the amount of pregnanetriol is usually increased. If this finding was confirmed in a larger number of cases, then it would be of value as a point of distinction between hyperplasia and tumour, as this steroid is invariably detectable in the former. However, Greenaway and Gannon (1960) have isolated a steroid with the chromatographic behaviour of pregnanetriolone in one patient with a virilizing tumour, and further characterization of the steroid in this patient will be awaited with interest.

Cushing's Syndrome.

When this syndrome was first described in 1932, Cushing ascribed it to pituitary dysfunction. In 1943 Albright pointed out that overactivity of the adrenal cortex, whether from hyperplasia or tumour, was an invariable feature of this syndrome. Recent reports have reemphasized that the pituitary may be of clinical importance in those cases due to adrenal hyperplasia (Salassa *et alii*, 1959).

The symptoms and signs of Cushing's syndrome in its classical form are well known. But the spectacular combination of obesity, moon face, cutaneous striæ, subcutaneous ecchymoses, osteoporosis, hyperglycæmia, hirsutism and amenorrhœa is rarely seen in any one patient, and often some of the "classical" manifestations may be absent. The disease is more common in women, and may be difficult to recognize in its early stages.

The essence of Cushing's syndrome is over-production of cortisol, and final diagnosis may depend on demonstration of this. The urinary 17-ketogenic and 17-hydroxysteroid excretion will be increased, and provided one can be sure that this is not due entirely to pregnanetriol or pregnanetriolone, as it may be in purely virilizing conditions, then the diagnosis is established. Urinary 17-ketosteroid excretion is usually moderately elevated.

Distinction between those cases due to tumour and those due to hyperplasia is of obvious importance in treatment. Cortisone suppression, which is valuable in distinguishing virilizing hyperplasia from tumour, is of no assistance in Cushing's syndrome. ACTH stimulation may give equivocal results, and perirenal air studies, although frequently helpful, are sometimes unreliable, as the responsible tumour may be very small. Filkelstein (1959) has found pregnanetriolone in the urine of patients with Cushing's syndrome due to adrenal hyperplasia, but not in that due to tumour, and in the urine of another patient seen here with adrenal hyperplasia producing Cushing's syndrome, pregnanetriolone was detected (Harrison, 1960). If this proves to be a constant finding, then, clinically, it will be extremely valuable.

Stein-Leventhal Syndrome.

In the 25 years that have elapsed since this syndrome was described (Stein and Leventhal, 1935) little real progress has been made in clarifying the pathogenesis and rationale of treatment in this baffling syndrome. The common history is that of a woman who began to menstruate at the usual age and initially had normal menstrual periods. In the late teens or early twenties the periods become scanty and the intervals between bleeding longer, complete amenorrhœa developing in some cases. More than half the patients at the same time develop varying degrees of hirsutism. In some cases the oligomenorrhœa is preceded by menorrhagia for several months. The presenting symptom in the majority of cases is infertility, but sometimes, particularly in unmarried women, hirsutism alone may be the initial complaint. Obesity was described as an associated feature in the original paper; but more recent opinion suggests that this is no more common than in the general population. In the writer's experience, obesity has not been unusually common; but excessive growth of facial and/or body hair has been present almost invariably.

On physical examination, the only positive finding may be varying degrees of hirsutism; in a minority of cases there may be some clitoral enlargement.

In most cases the ovaries are significantly enlarged, but this may escape detection even during the most meticulous examination under anæsthesia. The macroscopic appearance of the ovaries is typical; they show a variable degree of enlargement and are smooth and shiny, with an appearance that has unfortunately been likened to oysters. The capsule is thickened, and on section the cortex is studded with innumerable small cysts. The characteristic microscopic features are marked proliferation of the theca interna with varying degrees of luteinization.

Bilateral ovarian wedge resection is followed by restoration of ovulatory menstruation in about 95% of patients, and pregnancy follows in about 80% (Leventhal, 1958), but the hirsutism is not affected.

This condition has been attributed to the thickness of the capsule preventing ovulation, to production of ovarian androgens (Shippel, 1955) and to imbalance of pituitary gonadotrophins (Ingersoll and McArthur, 1959). More recently, the adrenal cortex has been increasingly incriminated as a partner in the genesis of this condition. Total urinary 17-ketosteroid and 17-ketogenic steroid excretion is normal in these patients (Prunty *et alii*, 1958; Shearman, Cox and Gannon, 1961). However, abnormalities of individual 17-ketosteroid excretion similar to those discussed below in relation to idiopathic hirsutism have been described (Perloff *et alii*, 1958; Prunty, Brooks and Mattingly, 1958; Gallagher *et alii*, 1958).

Urinary pregnanediol, œstrone, œstradiol and œstriol excretion is within the range found in the follicular phase of the normal menstrual cycle (Shearman *et alii*, 1961). Reports of greatly increased urinary pregnanediol excretion (Wiele, 1960) in this syndrome have been based on methods that are not specific for 5-beta-pregnane-3-alpha, 20-alpha-diol.

We have found pregnanetriolone to be present in the urine of these patients both before and after wedge resection of the ovaries, and during subsequent pregnancy (Shearman *et alii*, 1961); and in six patients whose excretion of 17-20 dihydroxy, 20-methyl steroids was studied in more detail there was a consistent increase in the excretion of delta-5 pregnenetriol (Cox and Shearman, 1961). The implications that these findings may have in regard to the adrenal cortex are discussed more fully elsewhere (Shearman, 1961).

Idiopathic Hirsutism.

There is remarkably little information about "normal" hair distribution in women. One of the few surveys is by Thomas and Ferriman (1957). They found that about 7% of women aged between 15 and 44 years showed significant departure from what is ordinarily considered to be the

female pattern of hair growth. With particular reference to facial hirsutism, the number of women showing obvious excessive hair growth on the lip and/or chin remains fairly constant at about 5% until the age of 45 years, when there is a very rapid increase in incidence.

In practice, it is very nearly impossible to draw any arbitrary line between what should be regarded as normal and what as abnormal. One woman may be oblivious to a degree of facial hirsutism that would cause despair in another. These women menstruate, ovulate and, within the allowable limits of normality, fulfil their biological functions if they are fortunate enough to be asked to do so. They are not hypertensive, obese or diabetic except by coincidence, and their only symptom and sign is hirsutism.

There have recently been several reports of abnormalities of the various fractions that make up the total 17-ketosteroids in patients with idiopathic hirsutism (Perloff *et alii*, 1958; Prunty *et alii*, 1958; Gallagher *et alii*, 1958). Gallagher studied 13 consecutive patients presenting themselves to an endocrine clinic complaining of hirsutism. Only four complained of menstrual irregularity, and they were found to have Stein-Leventhal ovaries. In none of the other cases could any cause for the hirsutism be found—it was "idiopathic". In each case there was an increase in excretion of androsterone and ætiocholanolone; in the group, the excretion of these two 17-ketosteroids was three times the level found in normal women of the same age. The administration of cortisone suppressed these fractions in all cases, indicating that the source was the adrenal cortex and that the increase was under control of corticotrophin. Goldzieher and Laitin (1960) have suggested that these changes are due to an increased sensitivity of the adrenal cortex to normal fluctuations of ACTH secretion.

This, of course, does not mean that continuous adrenocortical suppression should be undertaken in every woman with excessive facial hair. Adrenal suppression is not trivial therapy, and there is no good evidence to indicate that such treatment is followed by improvement. Most clinicians would agree with Mattingly, Mills and Prunty (1960), who conclude that the results of steroid treatment for idiopathic hirsutism are disappointing. A similar conclusion was reached by de Mowbray *et alii* (1959).

Conclusions.

In some women who present with evidence of virilization a diagnosis may be possible on clinical evidence. For confirmation in this minority, and for differential diagnosis in the majority for whom a firm diagnosis cannot be made on clinical evidence alone, it will usually be necessary to employ hormone assays. The increasing knowledge of the metabolic disturbances responsible for these conditions has made diagnosis and treatment more precise than before. But the depressing fact remains that the majority of hirsute women must still be classified in the "idiopathic" group. For these women, no treatment apart from local cosmetic management can be offered; but this may ultimately prove to be a monument to medical ignorance rather than a biological necessity.

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BRITISH MEDICAL ASSOCIATION, TASMANIAN BRANCH: OUR FOUNDERS.[1]

By R. A. LEWIS,

Retiring President of the Tasmanian Branch of the British Medical Association.

THIS year, 1961, is the fiftieth anniversary of the formation of the Tasmanian Branch of the British Medical Association. As your retiring President I have the honour and privilege of delivering an address, and I can think of no more appropriate subject for such an occasion than to review this early period briefly as it has been recorded in the minutes of the meetings of the Branch of that year.

The first meeting, convened by Dr. Gregory Sprott, and held in Hobart on Saturday, July 22, 1911, was for the purpose of forming a Branch of the British Medical Association in Tasmania. In addition to Dr. Sprott, the following doctors were present: Dr. F. Allwork, Dr. G. M. Anderson, Dr. G. H. Hogg, Dr. J. S. Purdy, Dr. A. H. Clarke, Dr. E. J. Roberts, Dr. B. A. Anderson and Dr. E. Brooks. Dr. Ramsay, Dr. Webster, Dr. Sweetnam and Dr. Newell were not present, but sent a telegram regretting their inability to attend the meeting and wishing the new Branch every success. These doctors comprised general practitioners and specialists, and they came from districts as far away as Launceston and Westbury in the north and Franklin in the south, so they truly were a representative group of medical men well able to form the nucleus of the Tasmanian Branch.

The meeting voted Dr. Sprott to the chair, and Dr. Brooks was elected Secretary. Dr. B. A. Anderson then proposed, and Dr. E. J. Roberts seconded, the motion "that a Branch of the British Medical Association be formed, to be called the Tasmanian Branch, to include the area of Tasmania and its dependencies, with headquarters at Hobart". The first office-bearers were then elected, as follows: Dr. G. Sprott, President; Dr. F. Allwork, Vice-President; Dr. E. Brooks, Honorary Secretary and Treasurer; and Dr. Bruce Anderson, Dr. G. Murray Anderson, Dr. G. H. Hogg, Dr. E. J. Roberts and Dr. A. H. Clarke, members of the Branch Council.

The rules adopted at this inaugural meeting were based on those suggested by the Parent Body. Membership was to be offered to all members of the British Medical Association whose registered address in the books of the Association was situated within the Branch. Management of the affairs of the Branch was to be vested in the Branch Council, which was to consist of a president, elected annually from among those members who had not held the said office during the previous three years, a vice-president, who may be reelected, and a treasurer, a secretary, and five other members to be elected at the annual meeting. The only difference between the composition of this original Council and that existing at the present time is that the offices of president-elect and past-president have been added, and the two Federal Councillors may be individual appointments, whereas initially the president and secretary also fulfilled these duties; ordinary Branch Council representatives are now elected by each of the two subdivisions on the proportional basis of one for every 50 members.

The Branch Council was to have the following duties and powers: (i) To elect members of the Association in the manner prescribed by the by-laws. (ii) To manage the financial affairs of the Branch. (iii) To furnish an annual report to the Central Council. (iv) To bring before the general meetings of the Division such matters as may seem desirable. (v) To carry out the instructions of general meetings.

It was also resolved that the annual subscription, including contributions for ordinary expenses of the Branch, be 30s. It is very interesting to compare this with the 14 guineas which we now pay.

[1] Delivered at the annual meeting of the Tasmanian Branch of the British Medical Association on March 11, 1961.

The Branch Council met on four occasions in 1911; these meetings were held on September 12, November 3 and 17, and December 12. A general meeting of the Branch took place on December 8, 1911, at which the by-laws were submitted for approval of the members, and, after each had been considered separately, they were, with slight amendments, unanimously adopted and ordered to be published.

At the Branch Council meeting on November 3, 1911, 24 doctors were elected to membership of the Branch. Included in this number were many who not only left a lasting impression by their contributions to medicine in this State, but who also were well known to and greatly respected by some of us who are present this afternoon. The names and addresses of these men, in the order in which they have been recorded, are as follows:

Dr. Ernest William John Ireland, 160 Elizabeth Street, Hobart.

Dr. John Edgar Wolfhagen, 186 Macquarie Street, Hobart.

Dr. David Henry Edward Lines, Archer Street, New Town.

Dr. Ernest John Crouch, 184 Macquarie Street, Hobart.

Dr. Harry Nairn Butler, 180 Macquarie Street, Hobart.

Dr. Gamaliel Henry Butler, 140 Macquarie Street, Hobart.

Dr. Edward Hume Morgan, Hamilton.

Dr. Lindsay Stevens Miller, 156 Macquarie Street, Hobart.

Dr. William Vernon Shone, Evandale.

Dr. Robert Gillespie Scott, 172 Macquarie Street, Hobart.

Dr. Ronald Douglas Campbell, 134 Macquarie Street, Hobart.

Dr. David Smith Henderson, Kempton.

Dr. Wilfrid Wanostrocht Giblin, 142 Macquarie Street, Hobart.

Dr. James Sprent, 148 Macquarie Street, Hobart.

Dr. Lavington Grey Thompson, Launceston.

Dr. Whitfield de Witt Henty, Penguin.

Dr. George James Devonsher Davies, Beaconsfield.

Dr. Richard Charles Irvine, Cameron Street, Launceston.

Dr. Heinrich von See, Derby.

Dr. Evett Gordon Allport, Dover.

Dr. John Wollard Payne, West Devonport.

Dr. Joseph Love, Gormanston.

Dr. Alfred James Hamilton, Queenstown.

Dr. Francis Cole, Deloraine.

Dr. William Smellie, of St. Helens, and Dr. Hugh Armstrong, of Hobart, were elected to membership at the Branch Council meeting on November 17, 1911. Dr. Smellie is, I believe, the only member elected in this year who is still in active practice; he lives at Wynyard, on the north-west coast, and his energy and enthusiasm for work are remarkable.

Four members were elected at the Branch Council meeting on December 12, 1911; they were Dr. Lachlan Gollan of Ulverstone, Dr. Claude Fulton Hodgkinson of Scottsdale, Dr. William Atkinson Harrison of St. Marys, and Dr. George Ernest Clemons of Launceston. This completed the first year for the Tasmanian Branch of the British Medical Association, which was composed of 38 members; one year later the number had risen to 68, and now it stands at 263.

An address of this nature would be incomplete if the service rendered by the first office-bearers of the Branch was not given the recognition it deserves, and I shall now briefly mention each in turn, with particular emphasis on their Council appointments.

Dr. Gregory Sprott was president in 1911 and 1912, and he again held that distinguished office in 1923 and 1928. He was a member of the Branch Council continuously from 1911 to 1919, visited the United Kingdom in 1920, where he was the official representative of the group comprising Western Australia, South Australia, Victoria and Tasmania, and served on the Branch Council from 1921 to 1924 and finally from 1927 to 1932—in all, a total of 19 years. He was a Federal Committee delegate for 13 years, serving in that capacity from 1915 to 1919, in 1923, and from 1927 to 1932. His was truly a remarkable record of service. Dr. Sprott graduated from Glasgow University in 1885, and was registered to practise in Tasmania on July 5, 1890. He lived at Hobart, and, after a long and active life, died in 1942.

Dr. Frank Allwork became the second president. He took office at the annual meeting on February 15, 1913, but illness virtually compelled his immediate retirement, and he died in April of that year. The vice-president, Dr. Robert Gillespie Scott, appears to have performed the presidential duties for the remainder of the year. Dr. Allwork practised at New Norfolk.

The third president was Dr. Gustave Heuzé Hogg, of Launceston, and, like Dr. Sprott, he rendered long and distinguished service to the Branch. He was president in 1914, 1922 and 1927, was a Federal Committee delegate in 1914, and was a member of the Branch Council continuously from 1911 to 1923. At the annual meeting on February 21, 1914, when he assumed office, Dr. Hogg delivered the first true presidential address, and, as it is still preserved in the minutes of the Branch, as he wrote it, and, as the first few paragraphs deal with subjects that are most appropriate to this occasion, I shall quote them as a fitting conclusion to my address.

Dr. E. Brooks was secretary and treasurer from 1911 to 1914. He and Dr. G. E. Clemons were the first Federal Committee delegates. That he carried out his honorary duties in a most conscientious and able manner is well shown by the excellent minutes of the early meetings of the Branch. He left Tasmania for another State in 1915, and the President, Dr. Hogg, at the annual meeting of that year, said:

> We all owe very much to our honorary secretary, who has done the lion's share of the work. In Dr. Brooks, as honorary secretary, we have been singularly fortunate, unbiased by any personal motives, simply for the love of the profession, he has devoted much time and energy to the interests of the Association. I regret that we are shortly to lose his services.

Dr. George Murray Anderson was a member of the Branch Council from 1911 to 1915. He was president in 1915. He practised at Franklin, in the Huon Valley, and an interesting sidelight on his work in that district is a résumé by him of a paper on "Endemic Goitre", which he read at a clinical meeting on September 22, 1914; this is his summary:

> Authorities were quoted at some length to show that the commonest cause of goitre must now be held to be a bowel microbe probably a *B. coli*. It was considered that the marked preference of the disease for deep valleys, and its sharply defined endemicity even in rain water drinking districts, where the contagium vivum was probably air-borne, left something yet to be explained. The association of thyroid function with calcium and oxygen metabolism suggested a possible relationship with dolomite formations, and with carbon monoxide or carbon dioxide collecting in sheltered valleys through "dissociation of the Atmosphere". As the functions of the thyroid were complicated, so compensatory hypertrophy might result from diverse causes. It was considered that a number of accessory causes were often at work in the production of goitre "causes multiple". Advised a large brass plug in the bottom of water tanks to facilitate cleaning out, and its periodical use marked upon by health authorities. Had practised twenty-three years in the goitrous valleys of the Huon, a fruit growing district, where the people were goitrous irrespectively of whether their drinking water was from iron roofs or wells or streams, and yet no other source of soil contamination of food was evident.

Dr. Bruce Arnold Anderson practised at Westbury. He was a member of the Branch Council in 1911 and 1912. He is recorded as having attended the first meeting, but his name does not reappear until the annual general meeting on February 15, 1913. Travelling between West-

bury and Hobart in those days was no mean undertaking, and, having an extensive country practice to look after, he no doubt found the journey virtually impossible to undertake.

Dr. John Smith Purdy, of Hobart, was present at the inaugural meeting, but no mention is made of his name afterwards. He was registered in Tasmania, as a medical practitioner, on June 21, 1910, and was a graduate of the University of Aberdeen in 1898.

Dr. Arthur Hopkins Clarke was a member of the Branch Council from 1911 to 1918. He was made president-elect in 1917, but withdrew from this position later in the year, as he had accepted an appointment in the Public Service.

Dr. Edward John Roberts graduated from the University of New Zealand in 1891. He practised in Hobart, and was a member of the Branch Council in the years 1911 and 1912.

These were the men who were the leaders of our Branch in its first year of existence. They helped to develop it, and to form its policies, during the many difficult years that followed, and it is their memory that we honour today. I can think of no more fitting conclusion than to read now the beginning of Dr. Hogg's presidential address delivered on February 21, 1914.

> Gentlemen, first of all let me thank you for the honour which you have done me by electing me President of the Tasmanian Branch of the British Medical Association, an honour which I value very highly coming as it does from my professional brethren. Our Branch in Tasmania is but in its infancy, Dr. Gregory Sprott whose name will always be associated with every movement which has aimed at advancing the reputation and dignity of the profession was our first president, the late Dr. Allwork of New Norfolk one of those fine types of country practitioner whose untimely loss we lament and who would have been to-night, had he been spared, filling this chair more worthily than I can do, was the second, and now comes myself.
>
> It is some twenty-two years since I joined the parent Association in England, when the Colonial Branches were few in number and weak in strength compared with what obtains to-day; since then the British Medical Association has continued to spread and increase throughout the Empire, and, wherever its Branches are to be found, its chief aim has been to uphold the honour and dignity of the profession, to defend its interests and in doing so to promote the welfare of mankind.
>
> A section of the public are apt to think that our aims are selfish ones. I know of no more unselfish profession than ours, whether it be in our organizations, or our everyday work; in our research, we spend not only money, but what is far more valuable than money, brains, bodies and too often our lives in the attempt to lessen the aggregate of disease, suffering and death.
>
> If the British Medical Association in addition to playing a great part in our life's work, also does its best to see that the conditions under which we do that work are fair and just, surely the people as well as the State should not forget that the "labourer is worthy of his hire".

Dr. Hogg completed his address with these remarks:

> There is but little doubt that in Australia we are on the eve of great professional changes which will ensue sooner or later from the passing of a National Insurance Bill. It is when this measure is in its developmentary stages that it must be carefully watched and amended, and that not only in the interests of the profession, but, what is more important still, in the interests of the people. Those interests are mutually dependent, if the one suffers, the other will suffer still more. We know what blunders have been made in England and Germany in this great question with evil results to the sick and suffering, and we trust that these mistakes may be avoided in any Bill which a Commonwealth Government may propose. This Branch of the Association will unite with the other Australian Branches in a common council of watchfulness, always ready to assist the Government with its expert advice, and always ready when the time comes to take such action as may be deemed necessary.

These words could have been spoken today with equal truth and sincerity. The treatment of the sick and suffering has made great strides in this period of fifty years, but the dark cloud of governmental interference still remains. This may be the last year of our Branch as orginally constituted; but with its incorporation in the proposed Australian Medical Association, let us never forget our founders of fifty years ago, or the vital principles for which they strove and fought.

BACTERIAL ENDOCARDITIS IN SYDNEY 1950–1959.[1]

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IN 1885 William Osler, in his Gulstonian lectures on bacterial endocarditis, stated: "It is of use from time to time to take stock so to speak of our knowledge of a particular disease to see exactly where we stand in regard to it and to enquire to what conclusions the accumulated facts seem to point." With these words in mind, it seems opportune to review the situation with regard to this disorder in a number of the major Sydney hospitals. This series is a group of 279 patients from the records of the four Sydney teaching hospitals, the infectious diseases hospital and two of the larger non-teaching hospitals and covers the period from 1950 to 1959. The diagnosis was accepted as correct and the case as suitable for inclusion in the series if there were: (i) typical symptoms and signs and a positive blood culture; (ii) typical symptoms and signs and a negative blood culture; or (iii) an autopsy diagnosis with or without a positive blood culture. As will be discussed later, 43% the patients had negative blood cultures, but in one-third of these cases the diagnosis was subsequently confirmed at autopsy. The group consists of 217 cases of subacute bacterial endocarditis and 62 cases of the acute form of the disease. There is obviously a considerable overlap between acute and subacute cases, and the distinction into these two groups on the whole serves no real purpose. By tradition this is normally done, and in this series subacute cases have been taken as those in which the organism was a *Streptococcus viridans*, or in which the clinical course was prolonged.

In this series the ratio of males to females was 3:2. Reinfection or a recurrence of the disease within two years of discharge from hospital occurred in 6·8% of cases. This usually occurred within a month, but was also found from two months to two years after discharge. This compares with a recurrence rate of 3% in the Medical Research Council series (Cates and Christie, 1951). It appeared to be due to inadequate therapy or to increased resistance of the organism. Second infections occurred in 3·6% of cases. This occurred at intervals greater than two years and varied between three and 11 years.

Age Incidence.

This disorder occurs at any age, but is commonest between 20 and 50 years, particularly between 30 and 50 years (Figure I). This applies especially to the subacute cases. If one considers the acute cases there is a much higher incidence in the older age groups with a peak between 60 and 70 years. In this group the diagnosis was often missed because it was not generally realized that the disease may occur at this age (Anderson and Stafford, 1955). The high incidence in this age group was also complicated by the facts that the disease was often less severe, embolic phenomena were unusual and in the acute cases the disorder often followed urological surgery. For these reasons it may be more difficult to make the diagnosis (Bayles and Lewis, 1940).

[1] Based on a paper read at the Second Asian Pacific Congress of Cardiology, held in May, 1960, at Melbourne.

Cardiac Pathology.

An analysis of the underlying cardiac lesion (Figure II) revealed mitral incompetence as the commonest defect (33% of cases). The disease occurred particularly in patients with moderate or mild underlying cardiac lesions and the systolic murmur was often not prominent. Mitral stenosis with or without mild to moderate degrees of mitral incompetence occurred in 15% of cases. Aortic lesions were present in 26% of cases and combined mitral and aortic lesions were present in 17% of cases. On one occasion infection of the mitral valve occurred secondary to a Libman-Sack's endocarditis in a girl, aged 18 years, with disseminated lupus erythematosus. Congenital heart lesions occurred in 6% of cases. The commonest lesions were patent ductus arteriosus and ventricular septal

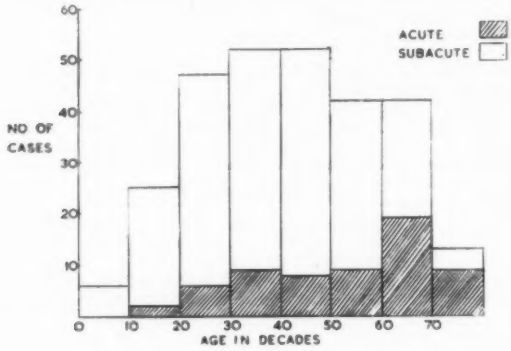

FIGURE I.

defect, with the former twice as common. Other lesions which occurred were tricuspid atresia, Fallot's tetralogy, pulmonary stenosis, dextrocardia and a ruptured congenital sinus of Valsalva. In general there was a failure to realize that the incidence of endocarditis is greater in persons with only mild or moderate underlying cardiac abnormalities.

Precipitating Factors.

In 10% of all cases and in 13% of the subacute cases there was a recent history of dental extractions. This occurred in 17% of the cases reported by Wedgwood (1955), and he found that in 43% of the subacute cases moderate dental sepsis was present. In this series there was no record of the degree of dental sepsis. More striking is the number of patients who had recently had urological surgery. This occurred in 5% of all cases, but in 21% of the acute cases. The disease may also follow a miscarriage (2·5% of cases), cardiac surgery (1·4% of cases), recent extensive trauma (1·4% of cases) and occasionally other surgery. Lisan *et alii* (1960) found that cardiac surgery was the commonest predisposing cause of staphylococcal endocarditis, but this was not confirmed in our series. The diagnosis was rarely considered in these patients, and, when thought of, was investigated and treated in a cavalier fashion. In 4% of cases it occurred as a terminal event in severe illness, particularly carcinoma. In 2% of cases there was a history of a recent upper respiratory tract infection. This has previously been noted by Dormer (1958) and may cause a delay in diagnosis.

Delay in Diagnosis.

The most striking feature of this series was the delay between the onset of symptoms and the diagnosis (Figure III). The time from the onset of symptoms to the provisional diagnosis varied from one week to two years with an average of 9·9 weeks. The acute cases made up 54% of those in which the diagnosis was made in under one week, and only five acute cases were undiagnosed for longer than one month. This does not include 11 patients who were moribund on admission to hospital. The average delay in the subacute cases was 12 weeks. Outside hospital, misdiagnosis was frequent, and chemotherapy with multiple agents was given on very inadequate grounds. On the patient's being referred to hospital, a correct provisional diagnosis was made in only 38% of cases, and further chemotherapy was again often instituted

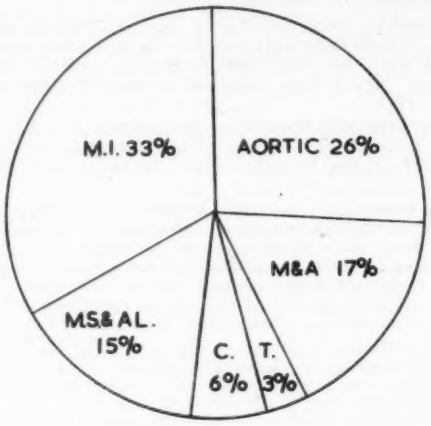

FIGURE II.

with an incorrect diagnosis and inadequate investigation. Finally, in three patients, despite positive blood cultures, the diagnosis was not made, and again delay in therapy occurred while further blood cultures were obtained. This delay in diagnosis at all levels was a most striking feature and warrants further discussion. Obviously it is very important to obtain an early diagnosis in this disease

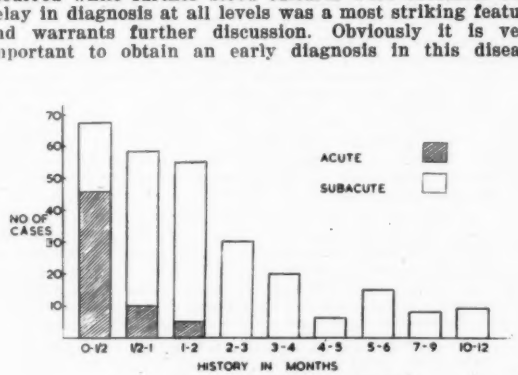

FIGURE III.

because delay will lead to greater opportunity for the occurrence of progressive endocardial and myocardial damage, injury to the kidneys and major embolic phenomena. The delay in diagnosis appeared to be due to a failure to realize the many ways in which this disease may present and the comparative rarity of the so-called classical physical signs. In fairness one must admit that the predominant clinical manifestations are often non-specific or misleading, the cardiac changes minimal and the classical physical findings rare.

Mode of Presentation.

The outstanding manifestations are those secondary to the infectious process and the commonest symptom was pyrexia, which occurred in 56% of cases. Malaise was the other common symptom, occurring in 39%. Gastro-intestinal symptoms, such as anorexia, vomiting, diarrhœa

and abdominal pain, occurred in 32% of cases and often led to a misdiagnosis. Osler (1885) stressed the frequency of these symptoms and referred to them as the "typhoid-like group". Rheumatic symptoms occurred in 27% of cases and, in the presence of a cardiac murmur, often led to a diagnosis of rheumatic fever. This was the misdiagnosis most often made by physicians. In 25% of cases cardiac symptoms, particularly those of cardiac failure, were present. Sweating occurred in 20% of cases and shivers in 12%.

Respiratory symptoms, including pain in the chest, hæmoptysis and cough, were present in 20% of cases, so

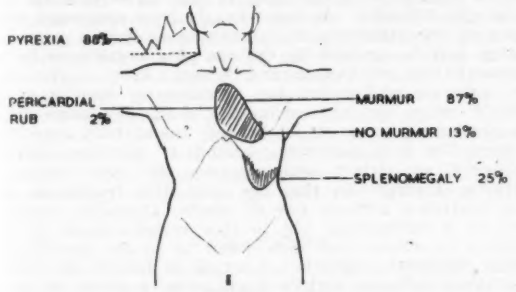

FIGURE IV.

that pneumonia was a common misdiagnosis. In some of these cases the hæmoptysis was secondary to lesions in the right side of the heart, but in others hæmoptysis was related to pulmonary emboli after deep vein thrombosis, or to unexplained causes. Cough for no apparent reason was present in the majority of those cases in which there were complaints of respiratory symptoms. Weight loss and embolic phenomena were prominent, and nervous system features included hemiplegia, meningitis, subarachnoid hæmorrhage and cerebral abscess. These features of nervous system involvement occurred in 10% of the series. In 4% of cases psychiatric symptoms predominated, so that these patients had shock therapy and one even died before the correct diagnosis was made.

Physical Signs (Figures IV and V).

The common signs were pyrexia (88% of cases) and murmur (87% of cases). In three cases no pyrexia was present at any time, and in several others periods of five to seven days elapsed when normal temperatures were recorded. Ross *et alii* (1957) have stressed the problem of fever in patients with valvular heart disease, and suggest that, as well as bacterial endocarditis, it may occur because of active rheumatic fever, the post-commissurotomy syndrome, drug fever, embolism, and a group of miscellaneous conditions including cardiac failure, disseminated lupus erythematosus, atrial myxoma, and thrombus and hæmoglobin pneumonia.

A murmur was present in 87% of cases, but was often not heard during the initial stages of the endocarditis, particularly in the acute variety. In other cases it was often only a faint murmur. In 13% of cases no murmur was heard at any stage, despite examination by several observers. Some of these cases were terminal; others were of bacterial endocarditis on a normal valve as part of a septicæmia, or of aortic valve lesions, particularly aortic incompetence. Murmurless bacterial endocarditis is commoner in the acute cases, but may occur in subacute bacterial endocarditis (MacGregor, 1956). Changing murmurs were noted in 30% of cases. These have often been emphasized as the hallmark of bacterial endocarditis, but if one waits for a changing murmur, then one is waiting too long, for this phenomenon indicates structural changes in the valve as the result of a well-established infection. In 2% of cases a pericardial rub was heard, and this added to the confusion with rheumatic carditis.

Splenomegaly occurred in 25% of cases, but at autopsy spleens which had been recorded as not palpable were often enlarged to three or four times their size. This suggested a need for a reassessment of our technique of examination for splenomegaly, and indicated that patients are not turned on their right side and the spleen palpated in this position with sufficient frequency. The spleen may become enlarged in uncomplicated chronic congestive cardiac failure, but it usually occurs only in cases in which there is also gross hepatomegaly. The presence of a readily palpable spleen in a patient with a cardiac condition, and even with congestive heart failure, should arouse suspicion that bacterial endocarditis may be a complicating feature. With cure of the condition splenomegaly may persist for many months, and in one personal case in this series, the spleen was still readily palpable 12 months after apparent cure. Definite clubbing of the fingers was recorded in 13% of cases, but was often lacking in long-standing cases (Figure V). Osler's nodes were present in 13% of cases. These are red, swollen, painful, raised cutaneous nodules, seen chiefly at the tips of the fingers and toes and less often on the thenar and hypothenar eminences (Osler, 1909). Similar subcutaneous and cutaneous lesions not having the classical features of Osler's nodes were seen in a further 10% of cases. The incidence of these lesions has varied in different series from 16% to 50% (Howard, 1960).

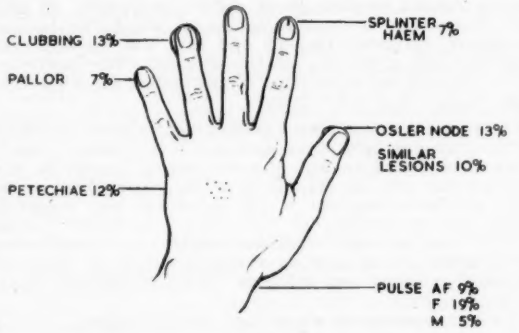

FIGURE V.

Splinter hæmorrhages occurred in 7% of cases and petechiæ in 12%. Conjunctival, retinal and mucosal hæmorrhages were only rarely mentioned, and their incidence was much lower than reported in other series, suggesting that they had not been looked for sufficiently frequently. The upper eyelids should be everted and the under surface of the tongue, the buccal mucosa, the retina, soles of the feet and the skin about the ankles examined daily in patients suspected of having this disorder. Petechiæ may continue to appear some time after control of the infection, and even after cure. Pallor sufficient to cause comment was present in only 7% of cases. The relative rarity of all signs other than murmur and pyrexia confirms the importance of making this diagnosis on the basis of the minimal criteria, as stressed by Friedberg (1950). He stated that in the presence of a cardiac murmur and a pyrexia of unknown origin for more than one week, then bacterial endocarditis should be suspected. Auricular fibrillation is said to be uncommon in this disorder, and McDonald (1946) found it in only 2·5% of cases. However, it occurred in 9% of cases in this series, and in 19% of the female patients, presumably because of the greater frequency of mitral valve lesions in women.

Blood Culture.

A blood culture was performed in 80% of cases. It was positive in 57% of cases, and this varied between 53% and 65% in the different institutions contributing to the series. On the whole there was a remarkable uniformity of results. As already mentioned, of the 43% of cases in which the blood culture was negative, the diagnosis was confirmed in one-third at autopsy. The making of

blood cultures varied in various institutions, from a routine blood culture performed on admission for all patients in whom a pyrexia was present, to six blood cultures at hourly intervals, six blood cultures over a period of 48 hours and six blood cultures at daily intervals. The culture was most often positive on the first attempt, but there were occasional cases in which the third or fourth sample was positive, and it was difficult to be dogmatic about the variable results in the different institutions. Belli and Waisbern (1956) suggest that five venous, one arterial and one bone-marrow culture is a reasonable routine in a suspected case. It seemed that the yield of positive cultures would be greater if routine blood cultures were done on all pyrexial patients on admission to hospital before the commencement of antibiotic therapy. At least three, and probably six, venous cultures should be performed over a 48 hours' period. Blood cultures were taken on the whole when the temperature was raised, particularly if it was high. Positive cultures seemed to be more likely to occur at these times, but there were instances in which positive cultures were obtained when the patient was apyrexial, particularly in patients who did not run a marked fever. Barritt and Gillespie (1960) claim that the bacteriæmia is constant, and that fever has no effect on the chances of a positive culture. However, they obtained positive cultures in 90% of their series. These unusual results may be related to their blood culture technique. In this series there were several instances in which the patient had begun antibiotic therapy and this was subsequently suspended and a positive culture obtained. The minimum period between the suspension of antibiotics and a positive blood culture was four days.

The organisms found were predominantly *Strep. viridans* (58%) and *Staphylococcus aureus* (28%). *Strep. hæmolyticus* was found in 5% of cases, *Strep. fæcalis* in 4% and *Bacillus coli* in 3%. *B. proteus, Hæmophilus influenzæ*, pneumococcus and mixed infections also occurred. There was no patient in this series in whom fungus infection was present. This may occur as a complication of antibiotic therapy, or as a superinfection in bacterial endocarditis (Pearl and Sidransky, 1960; Nicolaides, 1957).

Investigations other than Blood Culture.

A full blood count revealed anæmia of normocytic, normochromic type in 66% of cases, with an abnormal white-cell count in 46%. The degree of anæmia was related to the duration of symptoms, and may be of diagnostic importance in those with minimal signs (Parsons, 1953). The erythrocyte sedimentation rate was abnormal in 90% of the cases. More recently, patients on whom liver function tests were performed as part of a routine investigation had positive flocculation tests, with a normal serum alkaline phosphatase level in 92%. This has previously been noted by Tumulty (1960). The urine contained red cells in 52% of cases in which a microscopic examination of the urine was performed.

Examination of the blood for phagocytic reticuloendothelial cells was not performed in this series. Hill and Bayrd (1960) found that such cells were more common and more numerous in patients with persistently sterile blood cultures and may aid diagnosis. Daland *et alii* (1956) have pointed out that such cells are more frequently found in blood from the lobe of the ear.

Treatment.

It is not the purpose of this review to discuss extensively the treatment of bacterial endocarditis, which has been done at length in other places (Dormer, 1960). Over the years many and varied régimes have been followed in the various institutions, but in recent years a standard régime appears to have been adopted. This at present consists of the administration of 12 million units of soluble penicillin daily (in four- or six-hourly doses) for four to six weeks, or longer if necessary. This is combined with streptomycin (2 grammes given daily for one week and then 1 gramme daily for the second week). Early in the series much smaller doses of penicillin were used and were often effective. More recently, larger doses seem to have been required; this suggests that the sensitivity of the organism may have decreased. The standard régime has been adopted after the work of Geraci (1958), who suggested that the combination of penicillin and streptomycin produced a high cure rate in a shorter time. Intravenous penicillin has had to be used on 10 occasions, and was given in the dosage of 100 million units a day for 7 to 10 days. The indications were either subacute endocarditis unresponsive to all therapy, or infection with *Strep. fæcalis*. Such therapy may be associated with electrolyte disturbances, for each 10 million units of penicillin contain 0·4 gramme of sodium and 0·6 gramme of potassium. In this series this did not cause any difficulty. It has recently been suggested that many of the problems of intravenous penicillin administration may be avoided by the use of a continuous intramuscular drip (Schwartz and Wilson, 1959). Benemid (0·5 gramme six-hourly) has occasionally been used in difficult cases, but no conclusions could be drawn from the present series as to its benefit. Sensitivity reactions to penicillin have occurred occasionally, but have always responded to either antihistamine or, more recently, cortisone therapy, so that the penicillin treatment has been continued without any ill effects. Cortisone was not used as a therapeutic aid in this series except in two patients in whom there was doubt as to the presence of active rheumatic carditis. Lustgarten and Vogl (1959) state that patients with overwhelming toxæmia may be assisted by intravenous administration of hydrocortisone, which may act by inhibiting the response of the host tissues to the infecting organism, thus limiting tissue destruction and exposing the invaders more freely to antibacterial agents. Fever due to repetitive embolic episodes, inflammatory reaction at the site of injections, and secondary infection at these sites caused doubt as to whether therapy was effective in several patients. Staphylococcal infections were usually treated with combinations of streptomycin, "Chloromycetin" and erythromycin, depending upon the sensitivity reactions. The results were uniformly bad, but were probably made worse by the fact that the patients were often moribund when treatment was first begun. *Strep. fæcalis* infections were usually treated with penicillin in rapidly increasing doses (up to 100 million units a day), with streptomycin and "Benemid". These patients frequently had relapses, and only 30% of the patients with this organism recovered. In one patient spontaneous rupture of the spleen occurred as a complication, and the patient seemed to do better after removal of the spleen, while in a second patient removal of a mycotic aneurysm was followed by dramatic response to antibiotic therapy.

Prophylaxis.

Bearing in mind the number of patients who had a history of previous dental infection, we are obviously remiss in adequate prophylaxis in this disease. It has been suggested by Finland (1958) and Friedberg (1956) that 200,000 units of soluble penicillin and 600,000 units of procaine penicillin should be given 30 minutes before an extraction, and that this régime should be repeated on the next day. If extensive dental work is undertaken, then this therapy should be continued for three days. One gramme of streptomycin may be added as an additional factor for safety, especially in the case of patients who have been receiving penicillin as prophylaxis. It is also suggested that patients with cardiac murmurs undergoing urological surgery should be given penicillin, streptomycin and tetracycline for three days, starting the day before surgery. The adequacy of the above therapy is still in doubt (Morgan and Bland, 1960) and there was one patient in this series who, despite apparently adequate prophylaxis, developed a second attack of bacterial endocarditis after a dental extraction in hospital.

Results.

The results are disturbing. The over-all mortality was 46% and varied between 32% and 70%. This is especially

disturbing when compared with the usually quoted mortality of 30% (Finland, 1958; Friedberg, 1956). In acute cases it was 87%, compared with the usual figure of 70% (Dormer, 1960) and in subacute cases 38% (30% to 60%) as compared with 10%, although some recent series have had a mortality of 32% (Morgan and Bland, 1960). The mortality was much worse if the aortic valve was involved (67%) or if there was a combined lesion (50%). If the mitral valve was involved it was 36%. In cases of congenital heart disease the mortality was 30%, and in those in whom a blood culture was negative it was 33%.

Taking the mortality as a yearly figure, one sees that it has varied from 30% to 61%, but on the whole there has been no vast improvement in recent years, despite apparent improvement in therapy. This failure of improvement is also present if one considers only the subacute cases, which should respond more often to the more effective and complete therapy. These figures do not take into account the number of patients who presented with cardiac failure in the ensuing years. This is said to be 31% in five years and 51% in 10 years (Morgan and Bland, 1960). It is usually secondary to extensive damage to the valves, particularly the aortic valve, and is more likely to occur in the first year after cure (Hall, 1957).

Mode of Death.

The commonest mode of death among the 131 deaths which occurred in this series was cardiac failure (45%). Thirty-seven *per centum* of the patients with cardiac failure had a rupture of a valve cusp, a perforated valve cusp or a rupture of the chordæ tendinæ. In one patient there was a gross block of the aortic valve by vegetations producing a functional aortic stenosis, and in one other a rupture of a congenital aneurysm of the sinus of Valsalva occurred into the right ventricle. In 10 cases an embolus of the coronary artery had occurred, with sudden death in five and the development of cardiac failure in the remainder. The next commonest cause of death was embolic phenomena, which occurred in 43% of the cases. These were most commonly multiple, but in 21% involvement of the kidneys was so considerable that the patients died in renal failure, and, as already mentioned, in 18% of the cases of embolic deaths the coronary arteries were involved. Occasionally the embolic phenomena produced cerebral abscess, meningitis or a ruptured mycotic aneurysm. Pulmonary emboli occurred in three cases and multiple pulmonary abscesses in four. In the latter group all were secondary to acute bacterial endocarditis of the tricuspid valve. Multiple abscesses sufficient to cause death occurred in two cases. In 10 cases the cause of death appeared to be long-standing and overwhelming toxæmia. Eleven patients at the time of admission to hospital were already moribund, and could not have been expected to respond to any form of therapy.

Discussion.

Prior to 1944 and the introduction of penicillin the outlook in bacterial endocarditis was hopeless. After this there was a considerable improvement in the mortality rate, which resulted in the Medical Research Council trials reported by Cates and Christie (1951). This series gave an over-all mortality of 14·5% during treatment, with another 27·4% dying in the first six months after treatment. Subsequently the mortality for this disorder in the majority of teaching hospitals has been 25%, but amongst smaller hospitals the mortality has been 31% to 40% (Dormer, 1958). The over-all mortality in this series of 46%, with a mortality of 38% in subacute cases, is greater than the figure usually quoted. There appears to be no correlation between the mortality figures and variations in treatment because, if anything, treatment has improved in recent years. The poor results in the acute cases are not unique to this series and a mortality of 87%, although greater than the usual mortality, may be related to the number of patients who presented in a moribund state, and the number of cases in which the diagnosis was first made at autopsy. The poor results seem to be particularly related to the delay in diagnosis and to the failure to realize the many modes of presentation of this disease, the rareness of the so-called classical physical signs and the importance of beginning therapy before gross damage to the valves and embolic phenomena have occurred.

Summary.

A series of 279 cases of bacterial endocarditis from seven major Sydney hospitals is reviewed. This consists of 217 subacute and 62 acute cases. The ratio of males to females was 3:2. Reinfection occurred in 6·3% of cases and a second infection in 3·6%. The disorder occurs at any age, but had its peak at 30 to 50 years. In the acute cases the peak was between 60 and 70 years. Mitral incompetence was the commonest valve lesion (33%) with mitral stenosis in 15% and aortic valve lesions in 26%. Both valves were involved in 17% of cases and congenital lesions occurred in 6%.

In 10% of the subacute cases there was a history of recent dental extraction and in 21% of the acute cases recent urological surgery had been performed. The most striking feature was the extreme delay in diagnosis at all levels. This averaged 9·9 weeks in the series and 12 weeks in the subacute cases. This seemed to be related to a failure to realize the many ways in which the lesion may present. These are discussed, with emphasis placed on the need for making the diagnosis on the minimal criteria of a cardiac murmur and a pyrexia of unknown origin for more than one week.

Blood culture was positive in 57% of the cases, and the other routine investigations usually performed in these disorders are discussed. Treatment is reviewed, with mention of the standard régime in Sydney and certain problems in therapy. The results are disturbing. The over-all mortality is 46%, with 87% in acute cases and 38% in subacute cases. These poor figures seem to be related more to delay in diagnosis than to any fault in therapy.

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THE USE OF UNMODIFIED BLOOD GIVEN BY DIRECT TRANSFUSION.[1]

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FIRSTLY, I wish to pay a tribute to Dr. D. G. MacKellar, who in 1941 established a direct donor-to-patient transfusion service at the Mooroopna Base Hospital, which has been in operation for nearly 20 years and is probably unique in the world.

Both Dr. MacKellar and myself were inspired and helped by the late Dr. Julian Smith, who was a remarkable man. He was regarded as a genius by his contemporaries, and was eminent in the medical profession as well as being renowned as a portrait photographer. He had become interested in blood transfusions from an early period prior to World War I, when he performed direct artery-to-vein transfusions with Crile's cannulæ.

At the beginning of World War II he revived the rotary pump, which he greatly improved, and the Julian Smith model in design and simplicity is perfectly adapted to its purpose. At this period many direct transfusions were given under the supervision of Dr. Julian Smith. Most of them were carried out at the Alfred Hospital, but at the Royal Melbourne Hospital also a large number of transfusions were performed by Dr. J. Guest and Dr. K. Bradley. They reported, in THE MEDICAL JOURNAL OF AUSTRALIA, venous pressure determinations in more than 100 direct transfusions, some with two or three donors, and they concluded that the so-called "speed shock" was a myth.

However, when a large volume of bank blood is given at the speed of a direct transfusion, shock and collapse can occur from citrate intoxication. One cannot discuss the use of unmodified blood transfusion without mention of the misuse of citrated blood. The blood bank is an essential part of the large modern hospital. As a result, stored blood is so readily available and easily administered that its use can become dangerous. Crosby (1958), in a much-quoted article entitled "Misuse of Blood Transfusion", concludes with this sentence: "Thoughtless prescription of blood transfusion is playing Russian roulette with bottles of blood instead of a revolver. While the odds are in the physician's favour, that nothing will go wrong, the patient takes the risk."

In the last five years a number of articles have appeared in medical journals with such titles as "Hæmorrhagic Disorders following Massive Whole Blood Transfusion" (Krevans and Jackson, 1955), "Dangerous Contaminants in Stored Blood" (McEntegart, 1956), "Severe Citrate Intoxication during Cardio-vascular Surgery" (Hubbard *et alii*, 1956), "Citrate Intoxication" (Ludbrook and Wynn, 1958), "Fatal Collapse during Exchange Transfusion" (Robertson, 1959), and "Hæmorrhage and Transfusion as Major Cause of Cardiac Arrest" (Le Veen *et alii*, 1960).

Citrate intoxication is an untoward effect of rapid infusion of a large volume of stored blood. It has become a problem in the replacement of blood in exchange transfusion, in the over-enthusiastic management of various types of severe hæmorrhage and in cardio-vascular surgery. A progressive fall in the ionized calcium level in the blood can cause tetany, abnormality of the electrocardiograph, hypotension which is unresponsive to further infusion of blood and finally cardiac arrest.

Ludbrook and Wynn (1958) found high plasma citrate levels in four patients undergoing surgery under hypothermia and one patient died with signs of citrate intoxication. They carried out experiments on dogs and found the rise in plasma citrate level produced by a steady infusion of citrate was proportional to the rate of infusion. They state that the giving of a bottle of citrated blood in less than five minutes can cause a high plasma citrate level. In metabolically abnormal patients who have liver disease or anuria, or who have been rendered hypothermic, such a high citrate level would be dangerous.

Robertson (1959) reported that out of 352 exchange transfusions, collapse occurred on 19 occasions and death followed at intervals ranging from a few minutes to several hours. In 11 cases no changes were found at autopsy except those of erythroblastosis fœtalis. He stresses the importance of speed and states that, while it is possible to exchange a litre of blood in from one to one and a half hours, such a rate is extremely dangerous and will inevitably cause collapse and possibly death. Calcium gluconate was given to counteract the untoward effects of citrate, but 44 transfusions were carried out without its use and he was doubtful whether it was beneficial.

In a study of biochemical changes occurring during exchange transfusions in 19 infants, Farquar and Smith (1958) found that depression of the level of calcium ions due to transfusion of citrated blood could be neither prevented nor corrected by the injection of calcium gluconate. They also found hyperpotassæmia was the only constant feature of the abnormal cases; it was severe in cases of cardiac failure, and in one fatal case the serum potassium level was 36 mg. per 100 ml.

In a report in 1955 of a case of cardiac arrest occurring during an exchange transfusion, Pew (1955) made an interesting observation. After the infusion of 350 ml. of citrated blood into an infant, aged one day, a new bottle, which had not been adequately warmed, was used. Shortly afterwards the infant's heart stopped. The chest was opened and cardiac massage was performed. Normal rhythm returned in two minutes. The transfusion was renewed with the chest open. It was noticed that, as the infused blood again entered into the circulation, the heart became cold and the rate was slowed to such an extent that massage was again required. Fortunately the baby recovered. The blood calcium level at the time of the

[1] A post-graduate lecture given at Shepparton, Victoria, on November 19, 1960.

cardiac arrest was 2·85 mEq/l. and it was considered that both the low serum calcium level and the lowered temperature of the blood contributed to the cardiac arrest.

Twelve months later an article appeared in the *Journal of Pediatrics* by the same author (Pew, 1956); he had changed over to the use of heparinized blood, and, in 27 exchange transfusions, had found it to be much better tolerated and the cause of fewer complications than citrated blood.

Another pædiatrician (Valentine, 1958) had a somewhat similar experience. In a series of more than 70 exchange transfusions with citrated blood several infants had severe shock and there were three deaths. He changed to heparinized blood, and in 21 transfusions had no difficulties.

Hæmorrhagic disorders have been associated with massive blood transfusion of citrated blood. Krevans and Jackson (1955) reported thrombocytopenia in five babies, and in 14 adults who had received large transfusions, abnormal bleeding occurred, with petechial hæmorrhages. They stated that the degree of thrombocytopenia was related to the amount of blood given and to the rate of the transfusion.

A lowered platelet count in patients undergoing major surgery and receiving multiple transfusions was also found by Zucker *et alii* (1957). They studied 15 patients who had excessive oozing and observed a raised plasma citrate level, a low fibrinogen level with fibrinolysis and abnormality of other clotting factors.

I wish to refer to a patient who was admitted to the Alfred Hospital on April 9, 1958, and who had persistent hæmorrhage and abnormal clotting tests, associated with massive transfusion of bank blood. The patient was a young woman, aged 21 years, who had a normal delivery of a healthy baby on March 24. The perineum had been torn and on the day after the birth she was seen to be losing a considerable amount of blood per vaginam. A transfusion of citrated bank blood was given. Two days later a hæmatoma was incised and evacuated. Profuse hæmorrhage occurred from the wound and blood transfusion was recommenced. A curettage was performed, but the bleeding continued and the patient was admitted to the Alfred Hospital 16 days after her confinement. She had received 22 bottles of blood and the hæmoglobin level was 7 grammes per 100 ml. There was extensive laceration of the vulva and perineum, and as bleeding persisted another curettage was performed and transfusion of blood was continued. It was reported that there was hypoprothrombinæmia, with deficiency in fibrinogen. She was given 10 grammes of fibrinogen and a direct blood transfusion. There was a temporary improvement, but bleeding recurred and further injections of fibrinogen were given and drip transfusion was resumed. The presence was reported also of fibrinolysis, and the platelet count fell to 78,000 per cubic millimetre. Up to the sixth day after admission the patient had received a total of 45 bottles of bank blood and two direct transfusions. As bleeding was excessive and her condition was critical, hysterectomy was performed. Another direct transfusion was given. The abdomen became distended and was dull to percussion; it was tapped twice and two pints of blood were removed.

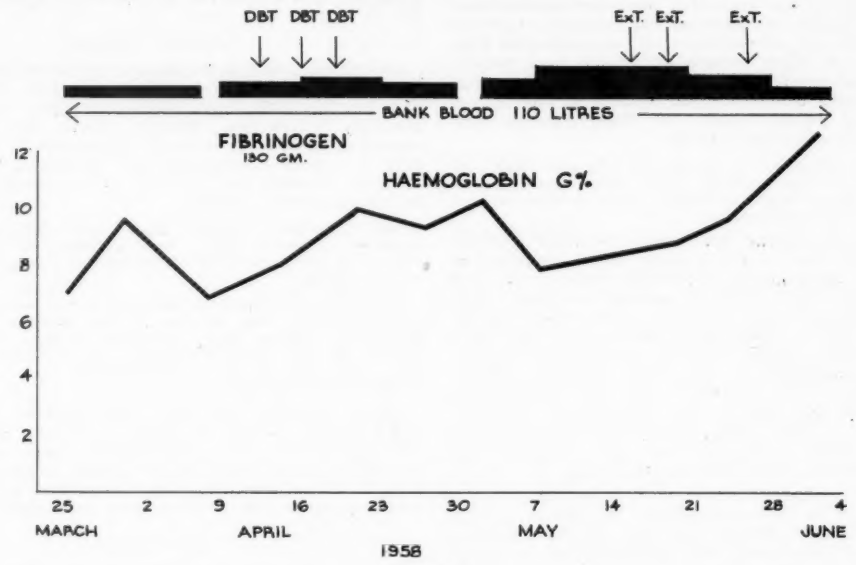

FIGURE I.

Showing blood transfusions given to patient with persistent post-partum hæmorrhage due to clotting abnormality. DBT. = Direct blood transfusion. ExT. = Exchange blood transfusion.

The patient's condition remained serious and she continued to bleed. In order to maintain the hæmoglobin level above 7 grammes per 100 ml. it was necessary to give transfusions and by May 7 she had received 102 bottles of blood. An electrocardiogram showed evidence of heart strain with inverted *T* waves. As there was also increased venous pressure, it was decided not to give direct transfusions by the usual method, but on May 15 an exchange transfusion of unmodified blood was given by four donors. This procedure was repeated on May 19 and May 26, with improvement in her condition. Bleeding finally stopped on June 3, 70 days after blood transfusion was commenced. She had been given 220 bottles of citrated blood and 130 grammes of fibrinogen; also three direct transfusions and three exchange transfusions had been performed (Figure I).

One cannot be certain in this case whether the hæmorrhagic diathesis associated with massive infusion of stored blood was due to blood transfusion or whether blood transfusion, necessary to maintain hæmoglobin level, was only an accessory factor. However, it was believed that three exchange transfusions from direct donors contributed to the patient's recovery.

Hæmatemesis and Melæna.

From 1940 to 1947, when I was out-patient physician at the Alfred Hospital, corresponding to Sir Wilberforce Newton as in-patient physician, all the cases of hæmatemesis under his care were given direct blood trans-

fusions. At this time, treatment was mainly medical and only occasional patients in desperate straits were subjected to surgery. The mortality rate had been high and it was found that patients given direct blood transfusion did better than those treated by other methods.

Our aim of treatment of serious bleeding was to give a transfusion of unmodified blood as soon as possible and repeat the direct transfusion if further hæmorrhage occurred. Such a procedure was considered to aid hæmostasis by the natural process of thrombosis and to prevent secondary complications arising from diminished blood volume.

After 1947, when I was appointed honorary hæmatologist at the Alfred Hospital, my interest was primarily in blood diseases and only occasional cases of hæmatemesis were referred to me for direct transfusion; these were usually patients who had persistent bleeding after massive transfusions of citrated blood. In an article in the *Alfred Hospital Clinical Reports* (1958) Dr. Peter Parsons mentioned three such cases and stated

> . . . there is much evidence to suggest that the transfusion of unmodified blood may lead to the arrest of hæmorrhage in certain cases, where indirect transfusion is unsuccessful.

Several cases of patients with severe recurrent hæmorrhage, who have had massive bank blood transfusions and have then been given unmodified blood with subsequent recovery, have been reported (McLean, 1943, 1953). One patient, a man, aged 36 years, was given 37 bottles of blood over a period of seven days, during which time he repeatedly vomited blood and passed melæna stools. When examined at this stage he had signs of congestive cardiac failure, which may have been partly due to electrolyte disturbance. The hæmoglobin level was 5·5 grammes per 100 ml. The systolic blood pressure was 90 mm. of mercury. Several direct transfusions were given, hæmostasis occurred and he recovered.

Another more recent example of the successful use of direct transfusion may be mentioned. In March, 1959, a young woman was admitted to the Alfred Hospital suffering from hæmatemesis and melæna with a hæmoglobin level of 5·0 grammes per 100 ml. She was given three bottles of blood and her condition improved, but five days later there was recurrence of bleeding, which did not cease during two days, while 10 bottles of blood were administered. Finally, after a direct transfusion of unmodified blood there was no further hæmorrhage.

Disorders of the Blood.

A feature of treatment at the Hæmatological Clinic of the Alfred Hospital is the administration of unmodified blood by direct transfusion. In the last 10 years more than 2000 direct transfusions have been given, and about half this number have been given to ambulatory patients, who attend the blood bank for one hour. After the compatibility tests are complete, the actual transfusion takes from four to five minutes. Antihistamines, such as "Anthisan" and "Piriton", are given and allergic and immunological rections are rarely seen. The cases may be considered in three groups: (i) leukæmia and lymphoma; (ii) aplastic anæmia; (iii) hæmorrhagic disorders.

Leukæmia and Lymphoma.

Blood transfusion is an accepted method of treatment of leukæmia. It is beneficial in the relief of anæmia, it acts as a hæmostatic agent and it probably is antileukæmic. Patients with acute leukæmia have been enabled, by regular direct transfusions, to carry on normal activities. One patient, a man aged 53 years, with severe anæmia due to marrow replacement by abnormal immature lymphoid cells, was given 29 direct blood transfusions and no other treatment. For a period of 18 months he was able to carry on his occupation and was not admitted into hospital until a final, fatal streptococcal septicæmia eventuated.

Another man of the same age suffered from acute lymphatic leukæmia. Chemotherapy with thiotepa and prednisone was given. For two years he had regular direct transfusions (47 in all) and was able to work continuously throughout this period.

The longest remission was in a man, aged 36 years, who had a malignant lymphoma of the marrow. He was first encountered in 1939, when he presented with leucoerythroblastic anæmia. He was treated by repeated blood transfusions over a period of a year. During the first six months he had nine transfusions of citrated blood, and then the method was changed, and during the second six months he had seven direct blood transfusions. His improvement was greater after the unmodified blood infusions, and a complete remission occurred, which lasted for 10 years.

Aplastic Anæmia.

In aplastic anæmia an unmodified blood transfusion can be regarded as a graft of living cells. The red cells can survive for a normal span, but leucocytes and platelets, which are "foreign", have only a temporary existence. However, clinical improvement indicates that they are able to function for a limited period. With repeated transfusion, recovery of a considerable number of patients has occurred.

One patient, a young man, aged 20 years, had an aplastic anæmia after two courses of "N.A.B.". He recovered after 14 direct transfusions given over a period of 12 months.

Another patient, a man, aged 60 years, who was a saddler by occupation, had aplasia of the marrow after contact with the aniline dye, Bismarck brown. The dye was rubbed on the leather by hand and absorbed through the skin. He had 18 direct transfusions over a period of 18 months and recovered.

Other patients, who have had aplastic anæmia after contact with chemicals such as benzol, drugs such as chloramphenicol and "Butazolidin", and radiation, have also been given direct transfusions; although frequently a terminal infection or a fatal cerebral hæmorrhage has occurred, about half of them have recovered.

Hæmophilia.

My first direct blood transfusion was given in November, 1938, by the syringe method, to a hæmophilic boy, aged 16 years, who was suffering from persistent hæmorrhage of the gums, after extraction of teeth. His coagulation time (by the Lee and Wright method) was longer than 18 minutes (at 37° C.). The teeth sockets had been plugged and replugged and he had been given transfusions of citrated blood, but despite the treatment, the bleeding had not abated. After a direct transfusion of 600 ml. of blood there was immediate hæmostasis.

Since then more than 200 direct transfusions have been given at the Alfred Hospital to patients suffering from hæmophilia. The present procedure is to use fresh plasma for immediate cover of minor operations, such as tooth extraction, and direct transfusion for persistent bleeding.

Idiopathic Thrombocytopenic Purpura.

Before the introduction of cortisone, transfusion of unmodified blood containing viable platelets was the most effective treatment of idiopathic thrombocytopenic purpura. However, the effect was temporary, as platelets have a very short survival. They have a delicate histological structure and recent work has indicated that platelets cannot be stored satisfactorily outside the body.

Recently a woman, aged 30 years, was admitted to the Alfred Hospital suffering from severe hæmaturia. She had had a splenectomy performed in 1949 for idiopathic thrombocytopenic purpura, but thrombocytopenia had persisted after the operation and maintenance treatment with cortisone and prednisone had been given. Hæmaturia continued, even with large doses of prednisone (500 mg. daily) but stopped immediately after a direct transfusion.

Another patient, a boy, aged 5 years, with idiopathic thrombocytopenic purpura, suffered from severe recurrent hæmatemesis. He had a splenectomy, which produced no improvement in the platelet count, and bleeding persisted. Cortisone was administered and both citrated and unmodified blood transfusions were given. It was noticed that

bleeding could be controlled by direct transfusion only. The platelet count did not reach a normal level until three months after the operation; thereafter he made a complete recovery.

Usually treatment by steroids or splenectomy is successful in idiopathic thrombocytopenic purpura, but in the unsuccessful cases direct transfusion is beneficial.

Exchange Transfusion.

The disadvantages of citrated blood in replacement transfusions have been mentioned. With the rotary pump, unmodified blood can be given and removed rapidly and simultaneously at a volume and speed which could cause cardiac arrest if citrated blood was used.

Dr. H. Luke and I (1960) have developed a technique for exchange transfusion with Seldinger catheterization of the femoral artery and basilic vein respectively. We have carried out 20 exchange transfusions, sometimes with 10 donors (5 litres of blood).

The principle of the Seldinger method is the introduction of a flexible guide wire through a needle, which is inserted in an artery or vein. The needle is withdrawn and a "Polythene" catheter is threaded over the guide wire, which is then removed. The "Polythene" catheter is connected to the "Vinyl" tubing used in the transfusion with a nylon fitting, so that blood does not come in contact with glass or metal, except in the highly polished Julian Smith needle in the donor's vein.

A method of exchange transfusion, which has been performed more frequently, involves a much smaller volume of blood (1 to 2 litres). The procedure is to give 500 ml. from a donor and then remove the same volume from the patient. Another donor is used and the procedure is repeated. The "Vinyl" tubing is changed with each transfusion and an indefinite number of changes can be carried out. This type of transfusion has been performed on patients who have developed transfusion hæmosiderosis.

The first patient treated by this method was a young woman who was suffering from paroxysmal nocturnal hæmoglobinuria. Since her first admission to the Alfred Hospital in December, 1946, she had received more than 120 blood transfusions. Her skin became pigmented and she lost weight. Her serum iron level increased from 180μg. per 100 ml. to 260μg. per 100 ml., and the iron-binding protein was almost fully saturated. Her liver function tests gave abnormal results and there was an increased amount of hæmosiderin in the marrow. She was given six exchange transfusions from a donor who had polycythæmia vera and a low level of serum iron. Her condition improved and the serum iron level fell to 100μg. per 100 ml. The anæmia recurred, and six further direct transfusions were given. Subsequently there was a rise in the serum iron level, which six months later was again 280μg. per 100 ml., with 100% saturation of the iron-binding protein. Treatment by exchange transfusion was resumed with the aid of Red Cross donors, and over a period of two and a half years the serum iron has been maintained at a lower level (Figure II). Her general health is improved and liver function tests give normal results.

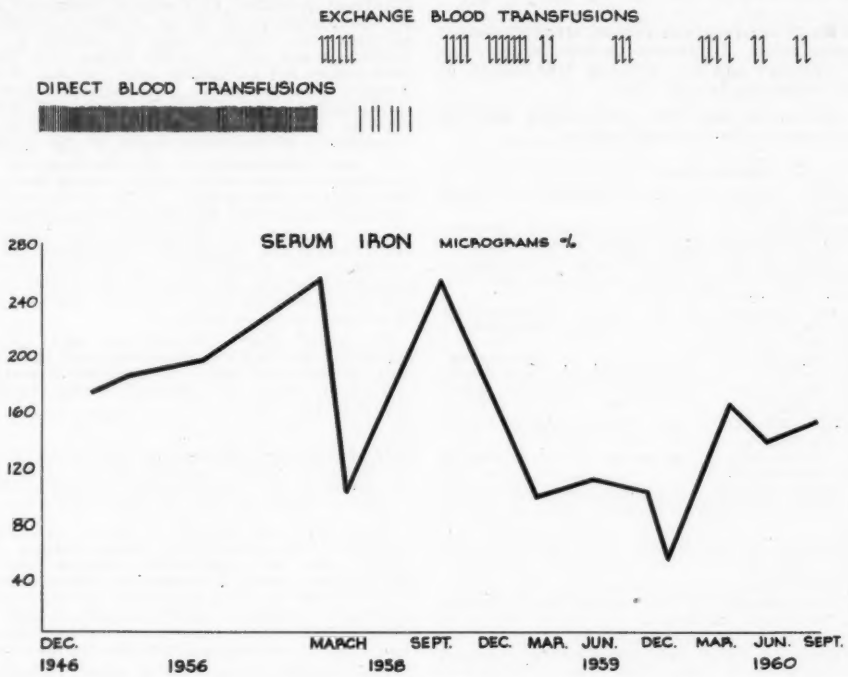

FIGURE II.

Showing the effect of exchange blood transfusions on the serum iron level in a patient suffering from chronic hæmolytic anæmia (paroxysmal nocturnal hæmoglobinuria and siderosis).

Transfusion hæmosiderosis is a serious complication of a blood-transfusion life, and hitherto treatment has been of little avail. The use of unmodified blood exchange transfusion is a new approach to therapy, which it is hoped will prove effective in preventing the development of the serious condition due to excessive iron storage.

Summary.

1. The influence of Dr. Julian Smith in developing a simple rotary pump technique for direct blood transfusion is acknowledged.

2. Recent articles on the danger of citrate intoxication from rapid administration of large volumes of banked blood are mentioned.

3. The association of hæmorrhagic disorders with massive transfusion of citrated blood has been reported. A patient was admitted into the Alfred Hospital with severe post-partum hæmorrhage and a clotting abnormality

associated with the administration of many blood transfusions. After 70 days of continuous transfusion, hæmostasis was finally achieved.

4. The use of direct transfusion in the treatment of hæmatemesis and melæna is discussed. It is considered that unmodified blood has a place in transfusion therapy.

5. Over a period of 10 years more than 2000 direct transfusions have been given to patients attending the Hæmatological Clinic at the Alfred Hospital. In leukæmia, aplastic anæmia and hæmorrhagic disorders the use of unmodified blood has been an effective method of treatment.

6. Unmodified blood can be given rapidly without danger in exchange transfusion. Seldinger catheterization has facilitated the technique and an exchange transfusion of five litres can be performed in one hour.

7. Exchange transfusion has been successfully used in the treatment of transfusion hæmosiderosis.

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Reviews.

The Physiological Basis of Medical Practice. By Charles Herbert Best, C.B.E., M.A., M.D., D.Sc. (Lond.), F.R.C.S., F.R.C.P. (Canada), and Norman Bourke Taylor, V.D., M.D., F.R.S. (Canada), F.R.C.S. (Edin.), F.R.C.P. (Lond.); seventh edition; 1961. Baltimore: The Williams and Wilkins Company. 10" × 6¾", pp. 1572 with many illustrations. Price: £8 16s.

ABOUT 20 years ago this book was justly regarded as a "medical best-seller". The appearance of other good textbooks of physiology and the increasingly difficult task of ensuring adequate revision of successive editions have led the principal authors to seek the assistance of collaborators. As a result, the seventh edition has been compiled, under the general editorship of N. B. Taylor, by 28 contributors with specialized knowledge in various aspects of physiology. All sections of the book have been thoroughly revised, and it seems reasonable to suggest that it will now regain much of its popularity. The addition of approximately 200 pages to the text is a sobering reminder to the individual reader that his problem in keeping up to date is even greater than that of the authors.

A Short History of Obstetrics and Gynecology. By Theodore Cianfrani, M.D.; 1960. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications Ltd. 9" × 5¾", pp. 468, with illustrations. Price: £5 (English).

AFTER an extensive and thorough research into American literature on obstetrics and gynæcology, Dr. Theodore Cianfrani, Associate Professor of Obstetrics and Gynecology in the Graduate School of Medicine, University of Pennsylvania, has written what is termed a "short history", tightly packed into over 400 pages. The book is heavy to hold and is not altogether light reading. There is a strong American flavour about the story, the references and the illustrations; while medical historians will come across exciting narratives unfamiliar to them and not previously recorded in authoritative books on the subject.

In the presentation of his material, Dr. Cianfrani has managed to cover much of the ground from primitive times down to the present day. In the later sections of the book there are interesting and illuminating accounts of the history of the obstetrical forceps, ovariotomy, vesico-vaginal fistula, the introduction of general anæsthesia, the prevention of infection, the development of surgical gynæcology as a separate specialty, the application of new teaching methods and the increasing demand for the special facilities provided in modern lying-in hospitals.

No doubt many obstetricians and gynæcologists will derive satisfaction from reading this book, although some medical historians may find themselves taking up a critical attitude in regard to a number of surprising episodes mentioned in the text.

Cell and Tissue Culture. By John Paul, M.B., Ch.B., Ph.D., M.R.C.P. (Edin.); second edition; 1960. Edinburgh and London: E. & S. Livingstone. 8¾" × 5½", pp. 324, with illustrations. Price: 32s. 6d. (English).

THIS small book is well on the way to becoming a classical "beginner's handbook" on tissue culture technique. The author has for some years directed the Tissue Culture Association's summer courses in Britain, and this experience has resulted in a direct method of approach, a thoughtful selection of material and a useful bibliography. Combined with a lucid and eminently readable style, these features make for a challenging introduction to the subject.

The author begins with a short historical introduction, and this is followed by an elementary discussion of cytology and cellular metabolism which most readers will probably find superfluous. The book also contains a valuable discussion of culture media and the rationale of their respective uses, a description of explant, free cell and organ cultures, and a survey of their applications to various research and diagnostic problems. An interesting feature is the chapter on the requirements for setting up a tissue culture laboratory, together with a list of material the author has found satisfactory, and their commercial sources.

In fact, a comprehensive coverage of a field impinging on several scientific disciplines is contained in a relatively short book, which, however, remains interesting and remarkably free from the jargon and obscure discussion that often mar works on the subject. The production is excellent, with good print and paper, clear line drawings and a small number of elegant photomicrographs.

The appearance of a second edition only a year after the first shows both the rapid expansion of the field and the increasing proportion of the scientific public interested in tissue culture, and this up-to-date account is sure to be read widely.

Bedside Medicine. By I. Snapper, M.D.; 1960. New York: Grune and Stratton, Inc. 9" × 6¼", pp. 606. Price: $14.50.

IN the words of its author, this book is a record of the medical knowledge he has acquired by experience in combination with the modicum of natural sciences which is necessary to the practice of good medicine. It is a discussion of bedside medicine as he likes it. At this time, when physicians and students alike lean heavily for diagnosis on the results of laboratory tests, it is good that a physician of the distinction of Isodore Snapper should reemphasize the Hippocratic method.

He has had a notable career as clinician and teacher of internal medicine. He has held important professorial appointments in three continents in his fifty years of practice. His academic background is thus beyond reproach, so that his observations at the bedside are supported by adequate (but not excessive) laboratory help. At times he is at pains to describe the step-by-step technique of certain of these procedures which he, like his teacher Van den Bergh, thinks should be carried out by physicians—for example, the examination of the stool for fat, and of the urine for Bence-Jones protein.

In a book of this size much must of necessity be omitted, but the range of subjects covered is still considerable. His opinions are usually orthodox, and show awareness of recent work, but at times he advances opinions at variance with those currently accepted. He supports with the help of his experience in China the thesis that Buerger's disease is an entity distinct from "arteriosclerosis", and sees some virtue, perhaps that of mass action, in the use of thiamin in neuritides other than that due to beriberi. He looks askance at the latest accelerated investigation of gastro-intestinal hæmorrhage, which he thinks may be dangerous. As one would expect from this author, such subjects as multiple myeloma and metabolic diseases are well discussed. The section on liver disease is excellent. His wide knowledge of physicians of international fame enables him to spice the book with anecdotes and fragments of medical history.

The format would be improved by illustrations and by the listing of at least the more important references. However, this book is one to buy. It will help the student, including the post-graduate, and its perusal will reward any physician.

Health in Childhood. By Richard W. B. Ellis; 1960. Mitcham, Victoria: Penguin Books Ltd. 7¼" × 4¼", pp. 256, with illustrations. Price: 7s. 6d.

THIS book, one of the "Pelican" series, is a most welcome new arrival. R. W. B. Ellis, Professor of Child Life and Health in the University of Edinburgh for the past 15 years, has shown particular interest in social factors influencing growth and development. His associations with World Health Organization have taken him to many parts of the world, including the "underdeveloped" countries.

The editorial foreword states that the book has been written essentially for the benefit of "the man in the street". This almost certainly flatters the man in the street. The text is clear and concise, but it includes too many medical terms to be easily digestible by laymen. The book is not a practical manual of child care, but a carefully assembled description of the exciting but hazardous path which a child treads from conception to maturity. The theme of the book is normal human growth and development, and diseases when mentioned are considered in the nature of minor or major departures from normal. For those with medical training, the book is easy reading. It is particularly suitable for medical students as an introduction to their training in pædiatrics, and to graduate nurses taking courses in infant and child health, especially when one considers its modest price. Apart from the cover design, the format is standard for "Pelicans", the monotony of the rather close print being broken by 16 simple charts and figures and 16 plates.

Vital statistics which are quoted are generally from the United Kingdom, but the book is international in its application, and can be appreciated fully without any knowledge of child health services in Britain. In this respect it is more suitable for Australian readers than is its elder sibling, "Child Health and Development", also by Professor Ellis.

Heart Sounds and Murmurs: A Clinical and Phonocardiographic Study. By P. A. Ongley, Howard B. Sprague, M. B. Rappaport and A. S. Nadas; 1960. New York and London: Grune & Stratton. 10" × 7", pp. 368, with many figures. Price not stated.

PHONOCARDIOGRAPHY, which is the main *raison d'être* of this book, has technical and clinical aspects which are mutually interdependent. Of the two senior authors, Dr. Sprague is a cardiologist and the late Mr. Rappaport was an electrical engineer. Together they were interested in the development of phonocardiography for over 20 years, and this work contains most of the fruit of their labours. Dr. Ongley and Dr. Nadas are both pædiatric cardiologists, and their work is reflected in the many chapters devoted to congenital malformations.

The first section, almost a third of the book, is devoted to physical aspects of auscultation and phonocardiography. Then follows a general consideration of heart sounds and murmurs, and the so-called gallop rhythms. The remainder of the volume is devoted to specific lesions.

There is no doubt that this book contains a great deal of information on the history of auscultation, its evolution and its interpretation up to the present day. And yet the book lacks cohesion and is apt to be diffuse and verbose; as English "literature" it does not rate high. The chapters on physical principles in particular could be more pithy and more informative. No doubt they have suffered through Mr. Rappaport's untimely death.

The clinical sections are authoritative, and are largely concerned with the extensive personal experience of the three clinical authors. They are well illustrated with phonocardiograms of a high technical quality. The documentation of the clinical section is brief, and will disappoint those who like to trace observations to their source. This criticism does not hold for the first section of the book, which is supplied with a good bibliography.

In summary, this is a reasonable attempt to cover the ground of auscultation and phonocardiography. However, it is a book of uneven quality, and will need revision if it is to have a permanent place in medical libraries.

Ciba Foundation Symposium on Hæmopoiesis: Cell Production and its Regulation. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Maeve O'Connor, B.A.; 1960. London: J. & A. Churchill Ltd. 8" × 5¼", pp. 502, with illustrations. Price: 60s. net (English).

THIS volume records 16 papers given at a small international conference of experts in the field of blood-cell production. It is concerned primarily with quantitative aspects of hæmatopoiesis, and includes discussions on lymphopoiesis, granulopoiesis and erythropoiesis. The various experimental methods used in the study of formation and maturation of blood cells, especially white cells, are discussed; these include the use of radioisotopes with special reference to tritiated thymidine, tissue culture and cell transfusions. Papers on erythropoiesis include discussions of the kinetics of erthropoiesis, erythropoietin and on the mobilization of vitamin B_{12} in response to acute blood loss. At the end of each paper there is an account of the discussion which followed, and there is a final general discussion; these discussions contain much of interest.

The book is primarily for research workers, and it will be widely welcomed by all investigators in the field which it covers. However, there is quite a lot to interest clinicians, particularly in the papers on erythropoiesis. It is well produced and clearly illustrated.

Synopsis of Ophthalmology. By William H. Havener, B.A., M.D., M.S.; 1959. St. Louis: The C. V. Mosby Company, Melbourne: W. Ramsay (Surgical) Limited. 7¾" × 4¾", pp. 288, with 189 illustrations. Price: £3 14s. 3d.

THIS is a useful little handbook containing the essentials of ophthalmology for the general practitioner. Throughout the book the author draws the attention of the general practitioner to his limitations in dealing with ocular disease, and points out the value of referral and consultation.

All chapters are uniformly good; however, the final chapter could have been omitted without detracting from the worth of the book. In the treatment of glaucoma one cannot agree that the intravenous injection of 500 mg. of "Diamox" every hour is good therapy, and not all will agree that in strabismus occlusion after the age of six years is useless.

There is a profusion of excellent illustrations and the paper and type are excellent—all of which make for easy reading.

The Metabolism of Cardiac Glycosides: A Review of the Absorption, Metabolism and Excretion of Clinically Important Cardiac Glycosides. By S. E. Wright, Ph.D., M.Sc., A.R.I.C.; 1960. Oxford: Blackwell Scientific Publications. 8¾" × 6", pp. 96. Price: 38s. (English).

THE rational therapeutic use of a drug requires an understanding of its fate in the body, and it is a matter of concern that so little is known of the metabolism of a class of drugs possessing the importance and time-honoured role in clinical medicine of the cardiac glycosides. Hence the appearance of a monograph dealing with the metabolism, absorption and excretion of these drugs is an important event. Professor S. E. Wright, in a monograph of 74 pages,

has reviewed in a systematic and comprehensive fashion the results of some recent research which is unravelling a number of the complex features of the actions of the glycosides. After an account of their chemistry, and the relation between structure and action, there follows an excellent review of some of the highly sensitive and delicate bioassay, isotopic and chromotographic techniques required to analyse the minute quantities of the cardioactive glycosides and metabolites appearing in tissue and in urine. It is clear that these assay techniques were essential for the success of the experimental investigations reviewed in subsequent chapters under the separate headings—cardioactive metabolites, absorption, distribution, excretion and in-vitro metabolism. Interesting and important findings which are discussed include the lack of selective uptake of the cardiac glycosides by cardiac tissue, the conversion of digitoxin to cardioactive metabolites which, interestingly, include digoxin, and the entero-hepatic excretion of glycosides and metabolites.

The author emphasizes throughout the importance of the physico-chemical properties of the drugs as determinants of their fate in the body. He draws the important conclusion that the cumulative action of digitoxin in comparison with other glycosides, such as digoxin, may well reside in the less polar characteristics and greater lipid solubility of the former.

The review is eminently readable. Our only criticism is the brevity of the final discussion, as a result of which we found that we had to refer back to the earlier chapters to remind ourselves of the experiment(s) on which some of the points considered in discussion were based. However, this is a minor criticism. The monograph fills an important gap in the field of drug metabolism, and will prove a valuable aid and reference to the laboratory and clinical investigator, whose research involves the study of cardioactive drugs.

A Guide to Antibiotic Therapy. By Henry Welch, Ph.D., 1959. New York: Medical Encyclopedia, Inc. 10" × 6¼", pp. 70. Price: $3.00.

THIS volume, prepared under the direction of one of the leading authorities in the field of antibiotic therapy, is an ingenious attempt to condense for the physician's ready reference the important information concerning each of 31 antibiotics. The information on each product is tabulated on two facing pages in four columns. In the first and last columns are listed all the common species of pathogenic organism with the in-vitro inhibitory concentrations of the drug set against each where this is known. Three values are given, to indicate the range of susceptibility in any one species. In the middle two columns are stated the general indications, side effects, major dosage forms, average daily dose, and the blood and urine concentrations to be anticipated. In this way the reader is presented with a potted summary of the clinical and practical information on each antibiotic in a way that should appeal to the laziest eye. The type is clear and well-spaced, and the gimmick of printing the pathogens listed alternatively on yellow and white backgrounds markedly increases the ease of reference to any desired line. In this list, we note that *Aspergillus* is misspelt, and the generic names appear indiscriminately in either singular or plural forms.

Modern Hygiene for Nurses: Including Bacteriology and the Principles of Asepsis. By M. A. Priest; 1960. London: William Heinemann Medical Books Limited. 8½" × 5¼", pp. 220. Price: 15s. net (English).

THIS textbook covers the hygiene section of the Preliminary State Examination in the syllabus of the General Nursing Council of Great Britain. It is divided into four sections: (*a*) a general survey of the Health Services in the United Kingdom; (*b*) on personal health; (*c*) on domiciliary and community health measures; (*d*) on bacteriology and asepsis.

From the viewpoint of Australian nurses the first section is of little value, since they are more concerned with Australian conditions.

On the whole, the book provides easy and interesting reading; but one wonders whether a beginner with a limited knowledge of bacteriology might not find it easier if the section on bacteriology came earlier. As it stands, bacterial food poisoning is discussed under "Food" early in the book, and this section takes for granted a knowledge of bacteriology and the transmission of infection before the reader comes to the sections which deal with these subjects.

At times there is a tendency to ambiguity in definitions—for example, on page 90: "At a given temperature the atmosphere can only take up a certain definite amount of water vapour. When this limit is reached the air is said to be saturated. This is called the absolute humidity." Again, on page 98: "Plenum system. This is a term used to describe a process whereby air is drawn into a building. The Plenum system can be used to extract air as well as draw it in. Vacuum system—as the term suggests this describes a system whereby air is sucked out of a building by powerful fans." Would the student be able to say how the two systems differ after reading these definitions? Whilst a number of the definitions are inexact, some are inconsistent—as, for example: "Vaccination—The injection of a *bacterial* vaccine. The first vaccination performed was against smallpox."

Although such small errors can be mentioned, one can also praise the manner in which the author has incorporated many modern ideas on stress, mental health and social medicine, as she deals with a variety of topics from housing in relation to health to noise, and from mental cleanliness to accident prevention.

The Hidden Persuaders. By Vance Packard; 1960. Mitcham, Victoria: Penguin Books. 7" × 4¼", pp. 224. Price: 4s. 6d.

THIS amusing yet very disturbing examination of the methods of America's super-advertisers was first published in 1957, but its appearance now as a Penguin Special should bring it to a much wider class of readers. Its theme is, in the author's words, "manipulation by playing upon the public's subconscious" for the purpose of selling drugs and ideas. The advertisers and salesmen have probably themselves fallen victims to the smooth talk of the psychologists who have been brought in to help sales and are themselves interested in selling their ideas. Nevertheless, it is difficult to be complacent about the methods used to sell products to people who do not need them, or cannot afford them, or do not even want them until they are artificially "persuaded". The book is entertaining and convincing and apparently is based on facts. Everybody should read it.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Carcinoma of the Colon", by Edward G. Muir, M.S., F.R.C.S.; 1961. London: Edward Arnold (Publishers) Ltd. 9" × 6", pp. 182 with illustrations. Price: 42s. (English).

"Clinical Hæmatology", by Robert Duncan Eastham, B.A. (Cantab.), M.D. (Cantab.), D.C.P., Dipl. Path.; 1961. Bristol: John Wright & Sons Ltd. 7" × 4", pp. 162. Price: 15s. 6d. (English).

"The Role of Speech in the Regulation of Normal and Abnormal Behaviour", by A. R. Luria; 1961. Oxford, London, New York, Paris: Pergamon Press Ltd. 8½" × 5¼", pp. 110 with figures. Price: 50s. net (English).

"The Story of Hospital Almoners: The Birth of a Profession", by E. Moberly Bell; 1961. London: Faber and Faber. 7½" × 5", pp. 160. Price: 13s. 6d. net (English).

"Assessment of the Activity of Disease", by J. S. Lawrence, M.D., M.R.C.P.; 1961. London: H. K. Lewis & Co. Ltd. 9½" × 6", pp. 260 with illustrations. Price: £2 2s. net (English).

"Neuromuscular Disorders: The Motor Unit and Its Disorders", edited by R. D. Adams, M.D., L. M. Eaton, M.D., and G. M. Shy, M.D.; Proceedings of the Association for Research in Nervous and Mental Disease, Volume 38; 1960. Baltimore: The Williams & Wilkins Company. 9" × 6", pp. 814 with illustrations. Price: £11.

"X-Rays: Their Origin, Dosage, and Practical Application", by W. E. Schall, B.Sc., F.Inst.P., Hon. F.S.R.; eighth edition, 1961. Bristol: John Wright & Sons Ltd. 9¼" × 7¼", pp. 360, with many illustrations. Price: 50s. (English).

"Geochronology of Rock Systems", edited by J. Laurence Kulp; *Annals of the New York Academy of Sciences*, Volume 91, Art. 2; 1961. New York: New York Academy of Sciences. 9" × 6", pp. 159-594. Price not stated.

The Medical Journal of Australia

SATURDAY, JUNE 24, 1961.

THE NATIONAL HEART FOUNDATION OF AUSTRALIA.

THE National Heart Foundation of Australia owes its origin to the interest which was aroused in a number of medical, legal and business men in Sydney as a result of meetings with Dr. Paul White in 1958. The enthusiastic support which these individuals gave to the idea that work in the general area of cardio-vascular disease should be intensified in Australia led rapidly to the formation of divisions of the Heart Foundation in each Australian State and to the formation of a national body, the National Heart Foundation, which has its administrative headquarters in Canberra.

Late in 1959 the Foundation appointed a Consultative Committee and asked it to consider a number of problems, prime among which were the composition and terms of reference of a National Medical and Scientific Advisory Committee. This Consultative Committee was made up of Professor F. C. Courtice, Professor A. H. Ennor, Dr. J. Halliday, Dr. T. E. Lowe and Dr. J. Kempson Maddox, and met in Canberra on December 11, 1959. Of the recommendations made, the most important was that each State of the Commonwealth and each of the following disciplines should be represented on the National Medical and Scientific Advisory Committee: medicine, surgery, pathology, physiology, biochemistry. It was further suggested that disciplines such as pharmacology, microbiology, genetics, biophysics and medical statistics might also be represented as the occasion should warrant. These recommendations were accepted by the Executive Committee and later by the National Foundation. The State divisions were then advised of the desire of the Foundation to receive nominations for membership of the Advisory Committee. Nominations were made by the State divisions on the advice of the State Medical and Scientific Advisory Committees which had already been formed, and as a consequence the Executive Committee established the National Medical and Scientific Advisory Committee, which has the following membership: Professor A. H. Ennor (Australian Capital Territory—biochemistry), chairman; Profesor F. C. Courtice (Australian Capital Territory—physiology); Dr. C. Fortune (Western Australia—cardiology); Dr. J. H. Halliday (New South Wales—cardiology); Dr. A. V. Jackson (Victoria—pathology); Professor J. Loewenthal (New South Wales—surgery); Dr. T. E. Lowe (Victoria—physiology); Professor G. M. Maxwell (South Australia — medicine and pædiatrics); Sir Alexander Murphy (Queensland — cardiology); Dr. H. M. Whyte (New South Wales — medicine, clinical research); Sir Ralph Whishaw (Tasmania—medicine, cardiology); Dr. C. H. Fitts (Victoria — medicine, cardiology); Dr. J. Kempson Maddox (New South Wales—cardiology). Dr. Fitts and Dr. Maddox are ex-officio members from the National Foundation.

This Advisory Committee met in Canberra on July 14, 1960, and paid particular attention to the manner in which the funds of the Foundation might best be spent to achieve the maximum benefit. It was appreciated that no definitive answers could be made to the many questions associated with cardio-vascular disease unless increased emphasis was placed on research. As a consequence the Advisory Committee recommended that 70% of the funds available to the Foundation should be spent on research and that the remaining 30% should be spent within the broad categories of rehabilitation and education (lay and professional). These two latter categories, for the purpose of brevity, may be taken to encompass all those aims and objects of the National Heart Foundation as set out in the Articles. It was further considered that the problems of rehabilitation and education would doubtless differ from State to State and that the State Advisory Committees would therefore be in a much more advantageous position to advise the Foundation than their national counterpart. Consequently it was decided to recommend to the Foundation that the State divisions should be invited to accept the complete responsibility for the initiation and fulfilment of the programmes within these categories. Such responsibility has been accepted, and the National Advisory Committee has set up a small subcommittee (Dr. Fitts, Dr. Fortune, Dr. Maddox and Sir Alexander Murphy), which has examined in some detail the facilities which are already in existence. It is relevant here to stress that it was the wish of the Foundation that the rehabilitation programme carried out by each State division should be closely integrated with such facilities as already exist, for example, in the major hospitals and in particular with the Commonwealth Rehabilitation Service. The Minister for Social Services has greatly assisted the work of this subcommittee, and excellent cooperation has been afforded by the permanent secretariats. It is anticipated that the various State divisions will soon commence work in this field and that some degree of integration and assistance will be given by the Medical Director when appointed by the Foundation.

Important though the problems of rehabilitation and education are, it is on the broad category of research that emphasis has been placed. The ultimate responsibility for recommendations on the expenditure of funds within this category rests entirely upon the National Medical and Scientific Advisory Committee. However, there will be a close liaison with the State Advisory Committees, whose assistance will be sought in ways referred to below. The Foundation is anxious not only to provide increased opportunities for laboratory and clinical research within Australia, but also to attract suitably qualified men into these fields and to provide them with adequate training in overseas laboratories and clinics. These aims have been carefully considered by the National Advisory Committee, which has recommended that "research" be taken to include research fellowships (both junior and senior and tenable within Australia and overseas), grants-in-aid, travel grants and visiting lectureships.

It is important to emphasize that the Foundation is cognizant of the potential dangers to which any grant-giving organization is exposed, particularly with respect to wasteful duplication of effort and equipment. As a consequence it has been decided that a close working association be initiated with all other similar organizations and in particular with the National Health and Medical Research Council, the Advisory Council of the Life Insurance Medical Research Fund of Australia and New Zealand, the Nuffield Foundation, the Post-Graduate Medical Foundation and the Australian Universities Commission. An association already exists between these bodies (with the exception on the latter two) in the sense that a number of the members of the National Advisory Committee are also members of one or other of the other committees. It is, however, intended that there should be an even closer contact, and discussions are now being held with the secretaries and chairmen of these organizations with this end in view.

Advertisements have already appeared for junior and senior research fellowships, overseas research fellowships and grants-in-aid, and there is no necessity to deal with these in any detail. Suffice it to point out that the junior research and overseas research fellowships will provide increased opportunities for training in the research fields and will undoubtedly greatly assist in the strengthening of Australia's academic structure. It is also relevant to mention that the Foundation will place the broadest possible interpretation on "cardio-vascular" research, so that work may be initiated in a number of fields. Travel grants will be recommended from time to time; these will cover travel in Australia and overseas and will be awarded (for trips of short duration) to those who can make a substantial contribution to the general field of cardio-vascular research. Visiting lectureships will be awarded from time to time to overseas scientists or clinicians of distinction in the fields of laboratory or clinical research for the purpose of bringing them to Australia for short periods. In the award of such lectureships the National Advisory Committee will work in close liaison with the Australian Post-Graduate Federation in Medicine and the Australian post-graduate committees, to avoid duplication and to ensure the maximum use of existing facilities.

The manner in which the State Divisions may assist the National Foundation in the decisions on awards within the research category has been decided upon. Thus applications from a particular State, when received by the Medical Director, will be replicated and copies sent to that State division for consideration by its Medical and Scientific Advisory Committee. Such comments as may be deemed appropriate by the State division will be forwarded to the Medical Director, who will send them, together with the applications, to all members of the National Advisory Committee. This latter committee will then decide what recommendations will be passed on to the Foundation, after consultation with the other bodies referred to above. In this way it is believed that an objective and accurate assessment will be made of the applicants and their research topics. In the present year the timing of advertisements has been so arranged that final recommendations can be passed to the Foundation in September. It is anticipated that awards will be announced soon after, and that the recipients will be free to commence work late in 1961 or early in 1962.

A number of professional men in both the clinical and laboratory fields have asked for some indication of Foundation policy as to the time over which the funds will be expended. It is not possible to give an answer to this question at present, for much depends on the rate at which moneys can be spent wisely in the research field. Clearly there is no dearth of problems, but there is a very real dearth of trained research workers of a high calibre, and it is this latter consideration which will condition the expenditure rate. Consequently it is the present intention of the Foundation to support first-class workers in Australia, to provide them with increased facilities for work and to take active steps to attract and train young men of research potential in Australian and overseas laboratories and clinics. This is a long-term programme and cannot therefore be expected to yield immediate results. But almost immediate benefits may be anticipated by the general public and the practising medical profession in the fields of education and rehabilitation.

The success of the recent campaign for funds to support the National Heart Foundation is a clear indication of the interest which the medical profession and the lay public have in the problems of cardio-vascular disease. But it is more than that, for it surely indicates that Australians realize the necessity of supplementing governmental grants which support projects destined to increase the knowledge and well-being of all sections of the population.

Current Comment.

THE MEETING OF THE NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL.

THE National Health and Medical Research Council at its recent meeting in Melbourne discussed a number of matters of general interest. Details of these have now been made available by the Commonwealth Minister for Health.

Infective hepatitis is very much in the public eye at present, and the medical profession is only too well aware of its persistently high incidence in most parts of Australia. Lay people have inquired, not least through questions in Parliament, whether some form of active immunization or similar control measures may not be possible. The opinion expressed by the National Health and Medical Research Council in a report to the Minister for Health was that in the present state of world medical knowledge, control of hepatitis must depend on improved personal hygiene in the family and the appropriate use of prophylactic gamma globulin by medical practitioners. The Council reported to the Minister that the problem of hepatitis had been referred to its Committee in Epidemiology for an opinion whether a special research project should be undertaken. This had followed representations by the British Medical Association. The Committee in Epidemiology noted in its report to the Council that virological studies of infective hepatitis were in train at the Commonwealth Serum Laboratories. It considered that while the National Health and Medical Research Council could consider and possibly support financially a project for research submitted to it by an informed worker, no definite progress could be made in either the understanding or the control of the disease until the virus had been isolated and grown *in vitro*. Many

attempts to do this had already been made throughout the world without success. It was pointed out that all States had made hepatitis notifiable and were collecting statistical and epidemiological information. At the request of the College of General Practitioners a survey is to be conducted of up-to-date information on the diagnosis and treatment of hepatitis for circulation to the medical profession as soon as it is available.

It will be remembered that some time ago the Tasmanian Health Department with commendable enterprise set out to encourage every person to possess a personal medical record card, which in the case of adults should be carried on the person. The National Health and Medical Research Council endorsed this move. The Director-General of Health Services in Tasmania, Dr. J. Edis, reported to the meeting that his department had already issued 17,000 cards to persons in Tasmania. They had been provided to people who had applied for them, or through medical practitioners, who had been filling them in and distributing them to patients. It was hoped ultimately to distribute a card to everyone in Tasmania. The intention was that the card should show the owner's name and address and indications of his medical condition, including immunizing or other inoculations or injections received. It was pointed out that this information was of assistance to the medical profession at all times, and particularly in the event of an accident or sudden illness requiring treatment by other than the person's own usual doctor. Significant information that it was intended should be included on the card included immunization measures against tetanus, sensitivity to drugs, the fact that the person suffered from diseases such as diabetes mellitus or hæmophilia, and his blood group. Members of the Council, in commending the scheme, said that it was a project that was likely to appeal to the motoring associations. An immensely valuable purpose would be served if perhaps one million Australian motorists could be persuaded to carry personal medical record cards with their driver's licences.

It was to be expected that the National Health and Medical Research Council would give considerable attention to the question of the supply of poliomyelitis vaccine. The information supplied by the Minister for Health indicates that after a detailed review of measures being taken to resume normal supplies of poliomyelitis vaccine from the Commonwealth Serum Laboratories, the Council expressed itself as fully satisfied with the steps being taken to produce a potent and thoroughly safe vaccine. The Epidemiology Committee of the Council has been kept fully in touch with developments concerning production of the vaccine, and the Department of Health has consistently sought and accepted its advice. It was reported that the technical problems associated with the production of the vaccine were still being examined by the special committee of scientists and medical men whose appointment was announced recently. This committee was hopeful that the adoption of certain steps it had recommended might produce an early and very satisfactory result. Commenting on the situation, the Minister of Health said that the protocol adopted by the Health Department in the production and testing of its poliomyelitis vaccine was probably the highest and most exacting in the world. There could be, in his view, no thought of lowering those standards of safety, even temporarily, to solve the current problem, embarrassing and persistent though the problem itself might be. Public safety must be the paramount consideration at every stage. If the necessity arose, more vaccine would be imported, but it would not be released until the experts advising the Government were convinced that it was satisfactory by Australian standards. For the present, it was intended to rely on the emergency supply already available in the hope that the difficulty which had delayed production by the Commonwealth Serum Laboratories itself would be resolved very soon. The fact that nearly 90% of all Australian children had already received Salk vaccine, or were now receiving quadruple antigen, and the absence of anything resembling an epidemic of poliomyelitis anywhere in Australia, justified this further temporary delay. The expert advisers of the National Health and Medical Research Council were, however, watching the position closely from day to day and would advise the Government immediately if a change of plans was deemed necessary. The Government would act promptly on this advice. Certainly everyone will hope to see an early end to the problems associated with the production and testing of poliomyelitis vaccine, which are obviously subtle and difficult of solution. It seems, however, that we must possess ourselves in patience. Positive steps in the matter have been taken, and we are unlikely to achieve anything useful by harassing the Minister or his Department or the Commonwealth Serum Laboratories.

ECHOES OF SIR JAMES SPENCE.

IN 1942, when James Spence was appointed to the newly created chair of child health in the University of Durham, he stated that the first aim of his new department was "comradeship rather than achievement", and the warm comradeship between all concerned with the care of children in Newcastle-upon-Tyne played a very significant part in the development of what proved to be one of the world's most outstanding pædiatric units. In 1960, six years after Spence's death, a group of his colleagues and friends were responsible for the publication of "The Purpose and Practice of Medicine",[1] which consists of a collection of his clinical and philosophical papers and a superb memoir by Sir John Charles, which provides much more than a glimpse of James Spence, his outstanding leadership in various fields of medical practice and teaching, his wide culture, vivid imagination, broad vision and great personal charm. Sir John Charles describes Spence in his middle forties as "a stimulating and attractive figure, forthright and dogmatic and yet at times whimsical in utterance" and writes of his special gift of leadership ". . . that intangible and yet shining virtue . . . one of the most potent gifts with which mortals can be endowed". Donald Court, who succeeded Spence in the Newcastle chair, has said that ". . . even when you felt sure that he was wrong, you always emerged wiser from the encounter for James Spence, artist, scientist, romantic and realist, conservative and rebel, was always a leader".

The papers included in "The Purpose and Practice of Medicine" have been divided into four sections: the first two parts are essentially clinical and include studies of cholæmia, nutritional xerophthalmia, tuberculosis, pink disease, poliomyelitis, sugar tolerance and the antirachitic activity of calciferol, and a report on the health and nutrition of children between one and five years of age living in Newcastle-upon-Tyne. The third and fourth parts of this book consist of a series of papers which reflect the special pattern of pædiatric practice and thinking which belonged and still belongs to Newcastle-upon-Tyne. These two parts include most of James Spence's famous and well known papers and publications: "The Purpose of the Family", "Family Studies in Preventive Pædatrics", "A Thousand Families in Newcastle-upon-Tyne", "Hospital Needs for Children", and "The Care of Children in Hospital".

For those who knew James Spence this book represents a most stimulating memoir, and for the generation who knew not Spence it provides an excellent introduction to the work and the nature of a most outstanding man, who once led and is still strongly influencing pædiatric thought and practice. In the words of Sir John Charles: "Leadership was given to James Spence and rested lightly on his shoulders; as it is the lot of some to lead so he led those who walked with him, easily, gently and yet directly. Even now his influence, pervasive as always, is imminent and brings men to talk of him as if he were still with them, in the little room of his Department at Newcastle, or at the Athenæum or round the long table in the chamber overlooking St. James's Park where the Medical Research Council meets month by month."

[1] "The Purpose and Practice of Medicine", by Sir James Spence, with a memoir by Sir John Charles; 1960. London, New York, Toronto: Oxford University Press. 8½" x 5¼", pp. 320, with illustrations. Price: 63s. (English).

Abstracts from Medical Literature.

PHYSIOLOGY.

Role of the Kidney in Erythropoiesis.

W. SUKI AND A. GROLLMAN (*Amer. J. Physiol.*, October, 1960) report that there was a marked reduction in erythropoiesis and hæmoglobin synthesis in the nephrectomized dog as compared to the normal intact animal even when azotæmia was reduced to a low level by intermittent peritoneal lavage. Dogs with a ureterovenous anastomosis maintained in a similar manner showed a normal rate of erythropoiesis, as measured by radio-iron uptake. It is concluded, therefore, that the kidney is the site of formation of an erythrocyte-stimulating factor essential for the maintenance of normal erythropoiesis. That this factor is of humoral nature was demonstrated by the erythropoietic stimulating action of renal extracts.

Thyroid Influence on Reactions to Oxygen at Atmospheric Pressure.

C. W. SMITH *et alii* (*Amer. J. Physiol.*, November, 1960) report that experiments were carried out to determine what effect increased thyroid activity might have on the reactions induced in normal and hypophysectomized rats by continuous exposure to oxygen at atmospheric pressure. The feeding of desiccated thyroid or the injection of thyroxine increased the noxious effects of oxygen at atmospheric pressure. The data support the interpretation (*a*) that the development of hypercapnia and hypoxæmia secondarily to the initial pulmonary damage (probably induced by oxygen, *per se*, or in combination with small amounts of carbon dioxide) is rapidly increased by thyroid, and (*b*) that this further aggravates the initial pulmonary damage by direct action on the pulmonary vasculature and indirectly by central stimulation of the sympatho-adrenomedullary and hypophyseal-adrenocortical axes with a resultant release of adverse neurogenic and hormonal influence on the lungs. Other important thyroid effects which may augment the toxicity of oxygen at atmospheric pressure are discussed, as is their possible involvement in the experimental production of hyaline membrane disease and retrolental fibroplasia. The data provide supporting evidence that the protection which hypophysectomy affords against oxygen toxicity is due in part to the attendant elimination of thyrotropin and the resultant reduction of thyroid secretion.

Leucocyte and Fever Responses to Bacterial Endotoxin.

J. C. HERION *et alii* (*Amer. J. Physiol.*, November, 1960) report that administration of typhoid vaccine or purified bacterial endotoxin produced a leucopenia which was maximal at 50 to 60 minutes, followed by a second drop of plateau at 120 to 140 minutes. These changes were parallel to the known biphasic febrile response and were noted in both capillary and venous blood. The initial decrease affects both granulocytes and lymphocytes; subsequent leucocytosis was due to granulocytosis. Anæsthesia abolished the febrile response but did not affect the leucocyte changes. Repeated daily administration of endotoxin produced febrile tolerance characterized predominantly by loss of the second peak with shortening of duration of fever. A similar shortening of duration of leucopenia was noted with development of tolerance. Brief monophasic fever and leucopenia also was noted when a second dose was given six hours after the first. These observations support the concept of the central role of leucocytes in endotoxin fever, and suggest that changes in the ability of leucocytes to release pyrogen are concerned with the mechanism of febrile tolerance.

Experimental Hypertension in Pregnant Sheep.

L. W. HOLM *et alii* (*Amer. J. Physiol.*, October, 1960) report that sheep with spontaneously occurring or experimentally induced toxæmia of pregnancy do not develop hypertension despite the presence of marked renal ischæmia. The present study was undertaken in order to investigate whether pregnant sheep, like pregnant dogs and rats, do not exhibit hypertension when subjected to renal artery constriction. Bilateral constriction of the renal arteries was performed on pregnant ewes by a modified Goldblatt-Wakerlin technique, after control blood pressures had been recorded for several days. Blood pressure and blood urea nitrogen levels were measured throughout pregnancy and after delivery. All the animals which had renal artery constriction developed severe hypertension with retinal changes similar to those of human hypertension. The pregnancy did not affect the course of the hypertension nor did the hypertension alter the course of pregnancy.

Effect of Audiogenic Stimulation on Genital Function and Reproduction.

B. ZONDEK AND I. TAMARI (*Amer. J. Obstet. Gynec.*, December, 1960) state that they have for some time been interested in the extent to which sexual function can be influenced through the sense organs, and that they have studied this problem by exposing rodents to auditory stimuli. These experiments tend to show that audiogenic stimuli do not evoke regressive changes in the genital organs or in their functions, but stimulate the gonadotropic activity of the anterior pituitary lobe. The animals were kept close to an electric bell which rang for a period of one minute at ten-minute intervals, day and night. In mature rats, audiogenic stimulation increased anterior pituitary gonadotropic function, promoting prolonged or persistent œstrus, enlargement of the ovary and increase of the corpora lutea in number and size. In immature rats in which gonadotropic function had not started there was apparently little or no effect, and premature sexual development could not be achieved. In isolated mature rabbits, which require coitus or electrical stimulation to produce ovulation, the following changes were observed: enlargement of the ovaries, follicle hæmatoma, formation of corpora lutea, and in a few cases galactorrhœa. By audiogenic stimuli the same changes were induced as by the administration of pituitary or chorionic gonadotropin. There was an inhibitory action on fertility. Pregnant animals produced an average of 0·5 fœtus per animal as against 6·2 fœtuses per animal in the control series. Whether the auditory stimulus inhibits implantation of the fertilized egg or whether other factors are involved is a matter of further study.

Dietary Cholesterol and Fat and Atheromatosis in Laying and Non-Laying Hens.

A. C. IVY *et alii* (*Amer. J. Physiol.*, January, 1961) report that 24 female chicks received a diet containing 0·05% cholesterol, 3% fat and 22% protein for six months. Then 12 of them, 6 good layers and 6 non-layers or poor layers, received a diet containing 0·03% cholesterol, 2·4% fat and 14·25% protein for 52 weeks. The other 12 received a diet containing 0·08% cholesterol, 7% fat (6·5 grammes per 100 grammes of diet being beef tallow, m.p. 42° C.) and 17·44% protein, the relative energy values of the two diets being 774 and 1001 Calories respectively. These diets were given for 12 months, till the birds were 18 months of age. In the 12 hens on the low-fat, low-cholesterol diet, the incidence and severity of atheromatosis were 25% and 5% respectively; in the 12 on the high-fat diet they were 75% and 25% respectively. There was no difference in the incidence and severity of atheromatosis between the layers and non-layers. Since egg laying is associated with a marked hyperlipæmia and not a hypercholesterolæmia, these results show also that hyperlipæmia alone, though present for almost one year, does not increase the rate of accumulation of cholesterol in the arteries of hens.

Geometric and Mechanical Characteristics of Mammalian Blood Vessels.

R. L. EVANS *et alii* (*Amer. J. Physiol.*, December, 1960) have measured cross sections, relative thicknesses, longitudinal and circumferential distensibilities and propagation velocities of main arteries of dogs, cats and rabbits *in vivo* and shortly after excision. A few measurements of main veins and pulmonary arteries were also made in the dog; these indicated that the three types of vessels have comparable moduli of elasticity in distension. With a few exceptions, the main arterial cross sections are commensurate with the corresponding flows (as shown by Levy and Blalock's measurements, for example) and have marked tapers in only a few regions (which include the proximal descending aorta, the cœliac axis and the iliac bifurcation). Comparable measurements were obtained *in vivo* and soon after excision, and both showed wide individual variations among the genetically mongrel population.

Hypoxia and Ammonia Toxicity.

K. S. WARREN AND S. SCHENKER (*Amer. J. Physiol.*, December, 1960) report that ammonia toxicity was strikingly potentiated by short periods of hypoxia. The toxicity (LD_{50}) of

ammonium chloride administered intravenously to mice after two minutes in 15% oxygen was the same as that in 21% oxygen. However, its toxicity began to increase when they were exposed to 13% oxygen, and was markedly enhanced by each 2% decrement in oxygen concentration. The effect of a maximum lethal dose in 7% oxygen could be completely reversed in a matter of seconds by transferring the mice to 21% oxygen. The LD_{50} was not altered in an atmosphere of 99% oxygen, but this significantly prolonged life. Hypoxia had a relatively slight effect on "Metrazol" toxicity. Blood pH was unchanged by the short periods of hypoxia prior to ammonia injection. Furthermore, measurements of brain ammonia concentrations after a standard dose of ammonium chloride at 21%, 11% and 7% oxygen revealed that hypoxia had no effect on ammonia uptake or detoxication by the brain. It appeared, therefore, that hypoxia directly potentiated the toxic effect of ammonia on the brain.

Effect of Cortisone, Thyroxine and Cold on Femurs of Guinea-pigs.

H. SOBEL *et alii* (*Amer. J. Physiol.*, December, 1960) have analysed the femurs of guinea-pigs for total mineral, collagen and hexosamine content after daily administration of 25 µg. of *l*-thyroxine and/or 60 mg. per kg. of cortisone acetate for 30 days. As judged from values predicted from femur length, cortisone markedly inhibited growth; mineral and hexosamine contents were consistent with growth, and collagen content was greater than predicted. Thyroxine did not reduce growth of the femurs, but caused less of their constituents to be deposited. Animals exposed to 2° to 4° C. for 90 days demonstrated a growth pattern and femur composition similar to those observed in thyroxine-treated animals. When cold-exposed animals were returned to room temperature and permitted to attain the weight of the unexposed controls, even though femur length was as great or greater, mineral, collagen and hexosamine contents were below the predicted values.

Cerebral Activity and Regulation of Breathing.

B. R. FINK (*J. appl. Physiol.*, January, 1961) has studied the influence of cerebral activity in wakefulness on regulation of breathing. Thirteen healthy men, unaware of the objectives of this study, underwent passive or active over-ventilation, lowering the end-expiration carbon dioxide tension to 25 mm. of mercury or below. At the end of the period of hyperventilation, rhythmic respiration continued uninterrupted at approximately the control frequency. The volume of ventilation was above the control level during the first minute of recovery and then became stabilized at about two-thirds of the control volume; it continued at this level for over 10 minutes, during which time the end-expiration PCO_2 gradually rose toward the control level. No instance of periodic breathing occurred. The absence of over-ventilatory apnœa in the waking condition contrasts with its easy elicitation during general anæsthesia. The author concludes that cerebral activity associated with wakefulness is a component of the normal respiratory drive, and that carbon dioxide acts by augmenting the effects of this component.

Occlusion of One Pulmonary Artery Causing Unilateral Hypoventilation.

J. W. SEVERINGHAUS *et alii* (*J. appl. Physiol.*, January, 1961) report that temporary unilateral pulmonary artery occlusion resulted within one minute in a shift of tidal volume away from unperfused lungs in 14 anæsthetized closed-chest dogs. The shift of ventilation was caused by bronchoconstriction following the decrease of carbon dioxide concentration on the occluded side. It was prevented by inhalation into that side of 6% carbon dioxide in air, isoproterenol aerosol or 100% nitrogen, but not by atropine or vagotomy. Airway resistance on the occluded side was doubled, and compliance fell 25%. Functional residual capacity fell variably (0–25%), and anatomical dead space decreased. When blood flow was restored, shunting was detected and ventilation returned slowly with normal inflation, or immediately after hyperinflation of that lung. This suggests that terminal and respiratory bronchiolar smooth muscle constriction may lead to airway closure and atelectasis, and that the gas exchange of the smooth muscle in smaller airways is carried out by direct diffusion to and from the airway rather than from the blood.

Respiratory Consequences of Passive Body Movement.

M. E. DIXON *et alii* (*J. appl. Physiol.*, January, 1961) report that the respiratory consequences of a number of passive body movements have been investigated in a group of normal subjects. It has been shown that certain types of torso movement produce hyperventilation in excess of metabolic demand, with a consequent lowering of end-tidal carbon dioxide tension. Passive pedal motion of the legs did not produce this type of hyperventilation and concealed it if performed in conjunction with the other movements. The mechanism for the passive hyperventilation is not understood, since the respiratory rate did not appear to be rhythmically linked to the body movement, and certain manœuvres in the experiments did not affect the results. The level of hyperventilation that has been demonstrated is considered to be adequate to explain the phenomenon of hyperventilation which has been recorded in pilots flying high-velocity low-level aircraft, who may be subjected to considerable jolting while sitting in an upright position.

Effect of Body Posture on Lung Volumes.

F. MORENO AND H. A. LYONS (*J. appl. Physiol.*, January, 1961) report that the changes produced by body posture on total lung capacity and its subdivisions have been reported for all positions except the prone position. Twenty normal subjects, twelve males and eight females, had determinations of total lung capacity in the three body positions, sitting, supine and prone. Tidal volume, minute ventilation and oxygen consumption were also measured. The changes found on assumption of the supine position from the sitting position were similar to those previously reported. For the prone position, a smaller inspiratory capacity and a larger expiratory reserve volume were found. The mean values were changed, respectively, —8% and +37%. Associated with these changes was a significant increase of the functional residual capacity by 636 ml. Ventilation did not change significantly from that found during sitting, unlike the findings associated with the supine position, in which position the tidal volume was decreased. Respiratory frequency remained the same for all positions.

HYGIENE.

Seasonal Coliform Variations in Well Waters.

R. A. VOELKER *et alii* (*Amer. J. publ. Hlth*, December, 1960) have studied seasonal variations in coliform counts in well waters. Bi-weekly bacteriological analyses of samples from a deep drilled well and a shallow dug well were made. MPN values for coliforms, ranging from 0 to 90,000 per 100 ml., followed a basically regular trend. High counts were typical of the warmer months. These fell to a minimum during the colder months, indicating a direct relationship between air temperatures and coliform counts. Short-term secondary peaks of coliform numbers were typical of both the dug well and the drilled well. There is some evidence that the effect of rainfall on well water levels in the wells is related to the number of coliforms in the well. Some evidence to support the theory that percolation of rain will cause an influx of surface bacterial contamination was found; there was no support in the data available for the theory that rainfall can improve the bacterial quality of well waters by a dilution effect.

Geographic Origin and Performance in Heat.

C. P. YAGLOU (*Arch. Environmental Hlth*, January, 1961) compares the responses of two groups of young men, one from Florida the other from New England, to the humid heat of Florida. Pulse rates, rectal temperatures and metabolic rates were noted during a period of exercise. The results indicated that the Southerners had a more efficient heat-regulating system, which enabled them to perform the standard exercises with distinctly less sweating, and a smaller rise of body temperature and heart rate. The Southerners required a shorter period for physical conditioning in the heat, and lost acclimatization at a slower rate than the Northerners during periods of cool, rainy weather. The superior performance of the Southerners is ascribed to their long-term acclimatization, and their knowledge of living and working in their accustomed warm climate. The author suggests that in selecting personnel for duty in hot areas the geographical origin of the individual should be given a high priority, possibly next to that of physical fitness.

British Medical Association.

TASMANIAN BRANCH: ANNUAL MEETING.

THE annual meeting of the Tasmanian Branch of the British Medical Association was held on March 11, 1961, at the Royal Society Room, Museum, Argyle Street, Hobart, DR. R. A. LEWIS, the President, in the chair.

ANNUAL REPORT OF THE COUNCIL.

The annual report of the Council, having been circulated to members, was taken as read and received. The report was adopted on the motion of Dr. J. B. Hamilton, seconded by Dr. B. Hiller. The report is as follows.

The Council has pleasure in presenting the Annual Report for the year ended December 31, 1960.

Membership.

The membership is 263 members against 262 members for 1959, a gain of one.

Obituary.

It is with regret that we record the deaths of the following members: Dr. M. W. Fletcher, Dr. C. Duncombe, Dr. G. R. Beattie, Dr. C. N. Atkins.

Honours.

We record with pleasure: Sir Ralph Wishaw, created Knight Bachelor, and Dr. T. C. James, awarded the O.B.E.

Meetings.

The annual general meeting of the Branch was held on March 12, 1960, at the Royal Hobart Hospital, at which there were 45 members present.

The following Office Bearers were elected:

President: Dr. R. A. Lewis.

Vice-President: Dr. W. W. Wilson.

Medical Secretary: Dr. K. Melville Kelly.

Honorary Treasurer: Dr. K. J. Friend.

President Elect: Dr. H. J. C. Engisch.

Committee Members elected were: Dr. D. B. Nathan, Dr. J. W. Hunn, Dr. A. J. M. Dobson, Dr. K. S. Millingen, Dr. A. L. Stephenson.

The address by the retiring President, Dr. L. Hardy Wilson, was entitled "Times and the Doctor". No other general meeting of the Branch was held, all other business being carried out at the monthly meetings of the Subdivisions.

Branch Council.

Thirteen ordinary meeting and one special meeting were held during the year, 11 in Hobart, two in Launceston and one at Tunbridge. Additional members of the Council were:

Chairman of Southern Subdivision: Dr. N. M. Newman.

Chairman of Northern Subdivision: Dr. H. Gatenby.

Secretary of Southern Subdivision: Dr. J. Correy.

Secretary of Northern Subdivision: Dr. D. A. T. Farrar.

Federal Councillors: Dr. F. R. Fay, Dr. L. N. Gollan.

Immediate Past President: Dr. L. Hardy Wilson.

The following attendances were recorded:

Dr. L. H. Wilson	12
Dr. W. W. Wilson	10
Dr. R. A. Lewis	12
Dr. K. M. Kelly	11
Dr. F. R. Fay	13
Dr. L. N. Gollan	11
Dr. A. J. M. Dobson	13
Dr. K. S. Millingen	12
Dr. J. Correy	12
Dr. D. B. Nathan	12
Dr. K. J. Friend	13
Dr. H. Gatenby	9
Dr. W. Hill[1]	3
Dr. A. McL. Millar[1]	4
Dr. M. W. Fletcher[1]	4
Dr. R. A. Godfrey-Smith[1]	0
Dr. A. C. D. Corney[1]	3
Dr. H. Engisch[2]	8
Dr. J. W. Hunn[2]	7
Dr. N. M. Newman[2]	9
Dr. J. Farrar[2]	9
Dr. A. L. Stephenson[2]	9

[1] Retired March, 1960.

Representatives and Committees.

Federal Council.

The Branch was represented on the Federal Council by Dr. F. R. Fay and Dr. L. N. Gollan, both of whom attended interstate meetings on behalf of the Branch. Once again we wish to record the appreciation of the Branch for the work done by these two members, who have now represented us for several years.

Annual Representative Meeting.

Dr. W. H. Hill was appointed to represent the Branch at the Annual Representative Meeting in Britain in June, 1960.

Australian Medical Association.

The first convention to discuss the proposed constitution for the Australian Medical Association was attended by two delegates from Tasmania, namely the President and Secretary of the Branch. In addition the two Federal Councillors were present. It was gratifying to note that the representation for the smaller States was adequately safeguarded, and that the new Association appears to be commencing on sound lines.

Representatives.

The Branch was represented on outside bodies as follows:

Australasian Medical Publishing Company Ltd.: Dr. W. E. L. H. Crowther.

Road Safety Council of Tasmania: Dr. F. Phillips.

Federal Relief Fund 1914-1918: Dr. B. Hiller, Dr. F. W. Fay and Sir Ralph Whishaw.

Federal War Relief Fund 1939-1945: Dr. F. R. Fay, Dr. T. Giblin, Dr. R. A. Godfrey-Smith.

Tasmanian Physiotherapists' Registration Board: Dr. J. Law.

Tasmanian Health Education Council: Dr. H. B. C. Houston.

State Fluoridation Committee: Dr. A. McL. Millar.

Committees.

Ethics: Dr. R. A. Lewis, Dr. J. B. G. Muir, Dr. Franklin R. Fay, Dr. L. N. Gollan, Dr. M. W. Fletcher and Dr. W. W. Wilson.

Newsletter: Dr. A. L. Stephenson, Dr. J. E. Correy and Dr. K. M. Kelly.

Workers' Compensation: Dr. F. R. Fay, Dr. A. McL. Millar, Dr. R. S. Lewis.

Medical Fees: Dr. F. R. Fay, Dr. A. J. M. Dobson, Dr. L. H. Wilson, Dr. J. B. G. Muir, Dr. A. C. D. Corney, Dr. D. A. T. Farrar, Dr. L. N. Gollan.

Building: Dr. F. W. Fay (chairman), Dr. H. M. Fisher, Dr. A. Ormond Green, Dr. K. S. Millingen.

Building Fund Appeals: Dr. K. J. Friend, Dr. B. Hiller, Dr. K. S. Millingen, Dr. M. W. Fletcher.

Medical School: Dr. L. H. Wilson, Dr. D. Parker, Dr. A. L. Stephenson, Dr. K. M. Kelly.

Tasmanian Medical Benefits: Dr. K. S. Millingen, Dr. K. M. Kelly, Dr. N. M. Newman.

Public Health Liaison: Dr. K. S. Millingen, Dr. K. M. Kelly, Dr. F. R. Fay, Dr. W. W. Wilson, Dr. R. A. Lewis.

Clinical: Dr. K. S. Millingen, Dr. A. L. Stephenson, Dr. N. M. Newman.

[1] Retired March, 1960.
[2] Elected March, 1960.

BRITISH MEDICAL ASSOCIATION (TASMANIAN BRANCH).

Income and Expenditure Account for the Year Ended December 31, 1960.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Secretarial Fees		400 0 0	By Members' Subscriptions		3,349 18 0
„ Printing and Stationery		160 5 4	*Less* Transferred to Building Fund	843 3 0	
„ Postages and Duty Stamps		154 7 6	*Less* Paid Tasmanian Post-Graduate Committee in Medicine	109 15 0	
„ Code Address		5 0 0			952 18 0
„ Capitation Fees:					2,397 0 0
Southern Subdivision	102 0 0		„ Interest:		
Northern Subdivision	82 10 0		Australasian Medical Publishing Co. Ltd.	80 0 10	
Federal Council	327 10 0		E. S. & A. Bank Ltd.	4 1 0	
Australasian Medical Publishing Co. Ltd.	65 10 0		Commonwealth Bonds	10 8 0	
British Medical Association, London	656 2 0				94 9 10
		1,233 12 0	„ Exchange		9 0
„ Wreaths	3 6 0		„ Sale Car Badges		1 17 0
„ Legal Expenses	12 12 0				
„ Bank Charges and Exchange	6 0 3				
„ Subscriptions paid other Branches	9 9 0				
„ Travelling Expenses	315 0 0				
		346 7 3			
		2299 12 1			
Surplus		194 3 9			
		£2493 15 10			£2493 15 10

Balance Sheet as at December 31, 1960.

LIABILITIES.	£ s. d.	£ s. d.	ASSETS.	£ s. d.	£ s. d.
Bank of New South Wales		1,109 10 9	Australasian Medical Publishing Co. Ltd.:		
War Relief Contribution		2 11 0	Debentures	1,295 0 0	
Sundry Creditors:			Cash in Hand	72 16 2	
Library Fund	8 8 0				1,367 16 2
Post-Graduate Fund	17 10 0		Furniture		30 0 0
Southern Subdivision Benevolent Fund	750 14 6		Gestetner		95 0 0
General Benevolent Fund	45 10 0		Mortgage Investment		500 0 0
		822 2 6	Building Fund Account		3,540 7 2
Dinner Fund		36 19 1	Commonwealth Bonds		260 0 0
Accumulated Fund Account:			Cash at E. S. & A. Bank		92 11 6
Balance January 1, 1960	3,654 17 9				
Plus Australasian Medical Publishing Ltd.	65 10 0				
	3,720 7 9				
Surplus for Year	194 3 9				
		3,914 11 6			
		£5885 14 10			£5885 14 10

Building Fund as at December 31, 1960.

	£ s. d.		£ s. d.
To Balance December 31, 1959	6,085 4 10	By Transfers from Members' Subscriptions	843 3 0
„ Bank Interest	138 18 0	„ Rents Received	800 4 0
„ Printing Brochures	18 15 10	„ Donations—Members	1,217 18 6
„ Architects' Fees	5 5 0	„ Mortgage Interest	35 0 0
„ J. T. Graves Repairs	32 5 6	Balance	3,540 7 2
„ A. D. Taylor Repairs	25 14 0		
„ City Rates	97 0 6		
„ State Land Tax	3 2 0		
„ Insurance	8 6 3		
„ Collecting Commission	22 0 9		
	£6436 12 8		£6436 12 8

Audited and found correct, subject to our letter of March 3rd, 1961.

ADAMS AND BENNETTO, Chartered Accountants.

Summary of Most Important Business.

North-West Medical Society.

During the year, this Society was formed as a group, and the President and Secretary attended the inaugural meeting as the guests of the Society. It is pleasing to note the formation of this Society as an indication of the growing solidarity of the profession in this State.

Medical School in Tasmania.

Meetings were held with University authorities further to the formation of a medical school in Tasmania. Efforts are being continued to bring this into being, but positive results so far have been slow. It is hoped that in the new year there will be some definite policy formulated by the University.

Nurses' Tribunal.

At the request of the Australian Nurses' Association, representatives were appointed to give evidence at the inaugural hearing concerning the professional status of trained nurses.

Workers' Compensation Act.

During the year, the Subcommittee met the Chief Secretary and the underwriters, and was successful in obtaining a revision of the scale of fees, with substantial increases in the fees for the more common services.

Nomination of Fellows of the British Medical Association.

The following were nominated as fellows of the British Medical Association: Dr. T. Butler, Dr. C. Craig, Dr. W. E. L. H. Crowther, Dr. F. R. Fay, Dr. J. H. B. Walch. To date these nominations have not received approval in London, but it is expected that the matter will be finalized in 1961.

Minister for Health.

Subjects discussed with the Minister for Health included the refusal of the Government to continue the grant for post-graduate education, the registration of specialists, and the matter of representation on hospital boards. Also discussed were possible amendments to the *Radioactive Substances Act*.

Health Department.

Once again it is pleasing to note that several meetings with the Director-General and his officers were held, with a keynote of appreciation of mutual problems on both sides of the table. Subjects discussed included notification of infectious diseases and fees thereafter, amendments to the *Dangerous Drugs Act*, medical record of birth forms, nursing education, retarded children, geriatric problems, elderly motor drivers' examinations, and the production of an information booklet for practitioners in this State.

Chief Secretary.

Matters discussed with the Chief Secretary included workers' compensation fees generally, and the question of fees charged for medical attention in public hospitals for workers' compensation cases.

Medical Council.

Opinions were given to the Medical Council on several matters, including the qualifications for registration, and matters of medical ethics.

Medical Benefits.

Medical benefits organizations were approached concerning anomalies in their methods, and also in reference to the ethics of some aspects of their management.

Safety Belts on Motor Vehicles.

Representations were made to the Government on the desirability of introducing legislation to make the use of safety belts compulsory in Tasmania.

Repatriation Department.

Representations were made to the Repatriation Department, through the Federal Council, for payment for unkept appointments of specialists. So far there has been no tangible result.

Medical Ethics.

Council was consulted by members on several matters of medical ethics, and there were also inquiries from members of the public which were dealt with by the Council.

General Inquiries.

During the year many inquiries were received for information on various subjects of medical importance. In some cases these came from research bodies and Government departments, and there were many inquiries from overseas doctors concerning conditions of practice in Tasmania.

K. M. KELLY,
Honorary Medical Secretary.

FINANCIAL STATEMENT.

The financial statement was adopted on the motion of Dr. K. J. Friend, seconded by Dr. J. B. G. Muir.

Dr. F. W. Fay explained the Building Fund Account, pointing out that the liability had been reduced from £6085 4s. 10d. to £3540 7s. 2d. over the period under review. In his opinion that was satisfactory.

INDUCTION OF PRESIDENT.

Dr. R. A. Lewis introduced the incoming President, Dr. H. J. C. Engisch, and vacated the chair in his favour.

ELECTION OF AUDITORS.

Messrs. Adams and Benetto were reelected auditors for 1961.

ELECTION OF OFFICERS.

It was announced that the officers of the Branch for 1961 were as follows:

President: Dr. H. J. C. Engisch.

President-Elect: Dr. W. W. Wilson.

Vice-President: Dr. K. J. Friend.

Honorary Treasurer: Dr. A. McL. Millar.

Honorary Medical Secretary: Dr. K. M. Kelly.

Southern Subdivision Representatives: Dr. A. L. Stephenson, Dr. T. W. Horne, Dr. K. S. Millingen.

Nominations received from the Northern Subdivision were out of time and could not be accepted.

GENERAL BUSINESS.

In accordance with a recommendation from the Branch Council, the following members were nominated for elevation to Fellowship of the British Medical Association: Dr. J. H. B. Walch, Dr. C. Craig, Dr. W. E. L. H. Crowther, Dr. T. C. Butler, Dr. Franklin R. Fay.

RETIRING PRESIDENT'S ADDRESS.

Dr. R. A. Lewis then delivered his retiring president's address (see page 927).

Out of the Past.

PRESERVATIVES IN FOOD.[1]

[From the *Australasian Medical Gazette*, January 20, 1903.]

DR. ASHBURTON THOMPSON, president of the Board of Health, states that hitherto there has been no regulation in force fixing the amount of preservatives that may be used in the manufacture of food (including drinks) of all kinds. This omission has been rectified by the adoption of the following regulation, which will come into operation on February 2nd:—1. Any one antiseptic or any one antiseptic preparation may be mixed with any food in proportions not exceeding 1/1000 of one grain per pint in the case of liquid foods and of 1/1000 of one grain per pound in the case of solid foods; provided that the label required by section 6 sub-section 2 of the Act, to be affixed to the vessel or parcel containing food mixed with antiseptics or with antiseptic preparations in accordance with the regulations, be in the form given in Schedule L, and be printed on a white ground in black capital letters of the size known as "two-line brevier sans serif", and contains no other matter. 2. The following substances shall be deemed to be antiseptics or antiseptic preparations for the purposes of this regulation:—Formaldehyde and its preparations, boric acid and its preparations, hydrofluoric acid and its preparations, sulphurous acid and its preparations, benzoic acid and its preparations, salicylic acid and its preparations, and derivatives of coal tar, whether direct or indirect." These new preparations have provoked a considerable amount of controversy amongst analytical chemists and manufacturers. It is maintained that the quantity of preservative allowed to be used is so infinitesimal as to be absolutely prohibitive. Some manufacturers maintain that in the warm climate of New South Wales the moderate use of preservatives is absolutely essential to prevent the creation of ptomaines in certain descriptions of tinned fods. The representatives of the aërated water manufacturers have interviewed the board on the subject, and as the result of a long discussion the manufacturers have decided to agree among themselves as to what amount of preservative they desire to use in their cordials. When their request is received by the board it will be considered. In like manner the board will deal with similar requests when made by other manufacturers.

[1] From the original in the Mitchell Library, Sydney.

Medical Societies.

PÆDIATRIC SOCIETY OF VICTORIA.

A MEETING of the Pædiatric Society of Victoria was held at the Royal Children's Hospital, Melbourne, on August 10, 1960.

The Nephrotic Syndrome.

DR. J. COLDBECK read a paper entitled "A Survey of the Nephrotic Syndrome as Seen at the Royal Children's Hospital, Melbourne, in the Past Ten Years". This paper was published in the issue of April 22, 1961.

DR. S. WILLIAMS stressed the important rôle that the parents of affected patients had to play. He said that he had been impressed by the work of the Nephrotic Foundation in the United States.

DR. I. MCKAY quoted figures from the Royal Melbourne Hospital. Of 57 patients, 38 had had nephritis (four of whom had proliferative progressive acute nephritis). Twenty-nine patients with membranous nephritis had been followed for more than two years; all had had renal biopsy, and some had had serial biopsies. They had been divided into Allan's groups of diffuse membranous nephritis, membranous proliferative nephritis and lobular nephritis; there had also been three patients in whom the glomeruli appeared normal—in one of them the appearances later changed to those of membranous nephritis. The lesions in those patients who received cortisone and those who did not had been histologically comparable. Thirty-eight *per centum* of the patients were in remission at the end of the two-year follow-up period. The histological lesions in all those patients were diffuse and proliferative. Those patients with lobular lesions had all done badly. Twenty-four *per centum* of the patients had complications (elevated blood pressure or blood urea level). Of those without such complications, 50% were in remission. Of those patients who received steroids, 40% had clinically improved, but there had not been any improvement in the renal biopsy findings. Of those who had not received cortisone, 33% had improved. It looked as if the value of cortisone was marginal. Dr. McKay asked what was the evidence that cortisone prolonged life, and what was the rationale for the use of the nitrogen mustards.

Dr. Coldbeck replied that he had no direct evidence that cortisone prolonged life in that condition, but he accepted the opinion of overseas workers that it did so. Nitrogen mustard had not been used at the Royal Children's Hospital.

MR. R. FOWLER said that Dr. Clark West, of Cincinnati, had used nitrogen mustard. He had found that the maximum benefit was obtained only after the patient had had full dosage of steroids for at least three weeks. It had been used only on the steroid failures. The disappearance of albuminuria had been used as the criterion of success. The recurrence of albuminuria was regarded as an indication for the resumption of steroids. Nitrogen mustard was used in a dose of 0·4 mg. per kilogram per day for three consecutive days. West's concept was of a pure nephrosis due to an immune phenomenon. The rationale of using nitrogen mustard was that it had the ability to inhibit the host's capacity to produce antibodies.

DR. R. WALL said that he had seen 13 cases in the preceding 10 years in a population of 100,000. Six of those children had had measles; of those six, one had died, one was probably well, and four were in remission after at least five years. Of his seven patients who had not had measles, one had a remission without treatment, two were in remission after treatment, and the remainder were relapsing, usually in association with upper respiratory tract infections.

Dr. Coldbeck, in reply, said that it was commonly stated that measles had a beneficial effect. He had observed that in four cases, but two other patients who had had measles were still under treatment. Quite a number of relapses in his series had apparently been due to upper respiratory tract infections, but he did not have accurate figures on that point.

DR. M. ROBINSON said that in Baltimore most authorities recommended cortisone as soon as the condition was diagnosed, using a dose of 40 to 80 mg. of prednisolone daily. It was used on a long-term basis, generally in association with a broad-spectrum antibiotic. With that régime, about 75% of patients appeared to make a complete recovery. In Boston, on the other hand, there was considerable scepticism about the steroids. They were not used as a routine, and the recovery rate seemed to be about 50%. A recent paper from the Hospital for Sick Children, Great Ormond Street, had suggested that the advent of the steroids had not greatly improved the prognosis of the disease. He thought that the time was ripe for a controlled trial.

MEDICAL DEFENCE SOCIETY OF QUEENSLAND: ANNUAL MEETING.

THE fifty-ninth annual meeting of the Medical Defence Society of Queensland was held at B.M.A. House, 88 L'Estrange Terrace, Kelvin Grove, Brisbane, on May 2, 1961, DR. F. W. R. LUKIN, the President, in the chair.

ANNUAL REPORT.

The annual report for the year ended December 31, 1960, was received and adopted. The report is as follows.

The Council of the Medical Defence Society of Queensland has pleasure in presenting the fifty-ninth annual report for the year ended December 31, 1960.

Membership.

The membership of the Society is now 1014 as against 971 last year. During the year 88 new members were elected and five returned from overseas. Our losses were as follows: left the State 32, resignations 8, deceased 4, lapsed by arrears 6. There are 17 members who have indemnity insurance cover with other approved organizations.

Obituary.

We regret to record the deaths of the following members: Dr. L. P. Winterbotham, Dr. E. Silberstern, Dr. E. D. Ahern and Dr. J. Lloyd Simmonds.

Office Bearers and Council, 1960.

The following office bearers were elected by the Council:

President: Dr. F. W. R. Lukin.

Vice-President: Dr. Athol Quayle.

Honorary Treasurer: Dr. T. V. Stubbs Brown.

Honorary Secretary: Dr. D. R. L. Hart.

Councillors for 1960: Dr. B. N. Adsett, Dr. T. R. Biggs, Dr. H. W. Horn, Dr. N. W. Martin, Dr. Robert Miller, Dr. W. J. Saxton, Dr. J. G. Wagner.

The following Councillors, who retired in conformity with the Articles, were unanimously reelected: Dr. T. R. Biggs, Dr. H. W. Horn and Dr. Athol Quayle.

Medico-Legal.

During the year, four cases were submitted to the Society for advice or action and ten were carried over from previous years. All were dealt with to the satisfaction of the Society and of the members concerned. Writs have been issued in three cases carried over from previous years, which the Society is defending. Others matters on which members sought advice were dealt with by the Council or the Secretariat.

General.

Following receipt of information from the British Medical Association, Council has sought the views of the Medical Protection Society and the Medical Defence Union of London, as to whether similar arrangements to those operating in the United Kingdom in regard to legal proceedings involving hospital medical staff could be negotiated in Queensland. Arrangements in the United Kingdom provide for the cooperation of the medical defence organizations and the hospitals in any actions brought by patients. Replies from London are expected shortly, and, if favourable, it is hoped that early approaches will be made to the Minister for Health and Home Affairs on the matter.

The leaflet, "Some Aspects of Medical Practice", giving condensed advice on medico-legal matters, is being revised and brought up to date. Council hopes to make copies available to members later in the year.

In accordance with Council's policy, a further £1590 of Commonwealth Inscribed Stock, which matured in 1960, was used to invest sums of £1000 in both the Southern Electricity Authority and the State Electricity Authority loans and £500 in Brisbane City Council Loan, all bearing interest at 5¾%.

Finance.

It will be shown by the balance sheet that the net surplus for the year ended December 31, 1960, amounted to £573 3s. 8d. Some items of income and expenditure are as follows:

RECEIPTS.	£	s.	d.
Annual subscriptions Medical Defence Society of Queensland	574	7	6
Entrance fees	91	7	0
Subscriptions—			
Indemnity insurance, Medical Protection Society Ltd., London	7287	15	8
Medical Defence Union, London	44	4	10
Interest — Commonwealth Government Inscribed Stock, Brisbane City Council Loan and State Electricity and Southern Electricity Authority Inscribed Stock	480	16	9
National Bank of Australasia—interest	57	15	11

EXPENDITURE.	£	s.	d.
Amount remitted to Medical Protection Society Ltd., London	7788	10	9
Amount remitted to Medical Defence Union, London	48	13	11
Secretarial and clerical assistance	452	16	8
Postages, duty stamps, printing and stationery, and sundries	98	5	0
Audit fees	38	17	0
Legal expenses	13	13	0
Federal income tax for year ended December 31, 1959	47	15	0

The total assets of the Society amount to £14,781 9s. 11d., which include the following cash balances:

National Bank of Australasia Ltd.	3025	18	6
Petty cash	9	7	11

The Society's investments total £11,702 13s. 6d., comprising £6702 13s. 6d. in Government inscribed stock, £2000 in Brisbane City Council inscribed stock, £1500 in Southern Electric Authority inscribed stock and £1500 in State Electricity Authority inscribed stock.

BALANCE SHEET AND FINANCIAL STATEMENT.

The balance sheet and financial statement for the year ended December 31, 1960, was received and adopted.

ELECTION OF COUNCILLORS.

The following Councillors, who had retired in conformity with the Articles of the Society, were unanimously reelected: Dr. B. N. Adsett, Dr. D. R. L. Hart and Dr. F. W. R. Lukin.

ELECTION OF AUDITORS.

Messrs. Groom, Sanderson & Co., chartered accountants, were reelected auditors for the ensuing year.

Correspondence.

THE PLUNKET SOCIETY.

SIR: In THE MEDICAL JOURNAL OF AUSTRALIA of April 29, 1961, the editorial on the Plunket System of New Zealand ends with these words:

> This is an interesting picture which calls for the highest commendation. Perhaps the most important thing about it is that it shows a strong spirit of community responsibility and self help in a country which we have come to think of as much more advanced in the ways of the Welfare State than ourselves. Have we anything of the same calibre to offer?

It is, to say the least, a little surprising to find it necessary to answer such a question in the pages of THE MEDICAL JOURNAL OF AUSTRALIA, which on June 18, 1960, printed a paper which I delivered on the subject. However, I hope the following outline of the development of maternal and infant welfare in South Australia will answer your question adequately.

In 1909, some two years after the beginning of the Plunket System in New Zealand, a small group of women in Adelaide, deeply concerned at the high rate of infant mortality, began a project on the lines of the St. Pancras School for Mothers—without, it must be confessed, creating much public interest. Their first year of work was accomplished on an income of £10, but as every year passed more money and more people became available for the work. Without going into detail, it can be claimed that within the 50 years following 1909 a valuable organization for this field of preventive medicine developed.

At first known as The School for Mothers, with headquarters in the city, the work gradually developed with the formation of centres throughout the metropolitan area, and also in many parts of the country. In 1934 the name was changed to The Mothers and Babies' Health Association. In 1940 a property on North Terrace was purchased for city headquarters. This is now too small to meet ever-growing demands, and a new administrative block is to be established on a large area owned by the M.B.H.A. on South Terrace and adjacent to Torrens House Mothercraft Training School, where infant welfare nurses and mothercraft nurses are trained. Throughout the State there are more than 240 M.B.H.A. centres, at which the latest yearly attendance figures amounted to 233,990. The nursing staff includes 37 full-time and 14 part-time centre sisters. Besides these activities, I will merely refer to the three trains acting as baby health centres in various parts of the State, the correspondence department which has contact with 1695 mothers, and the sisters who visit girls' schools and lecture on mothercraft. These facts suggest but the outer shell of the organization.

With regard to personnel, in the beginning we had sisters trained at Tresillian, N.S.W., and in Victoria, and after Torrens House was opened in 1938, in South Australia.

In the matter of finance, although we have remained a voluntary agency for this work—the only organization to do so in Australia—we have had constant financial help from the public, from local government councils, and above all, from the Government, whose grants for the last few years have been generous and of very great help. We remain in close touch with the Minister of Health, who is most interested in our work.

The interest of the community has been maintained through the years. All over the State there are branch committees, who share the responsibility of the local work with the Central Committee, and whose representatives meet a number of times during the year in Adelaide for discussion. They raise money which is helped from the central funds for local needs, and each committee sends in a quota to the central office.

With regard to policy: at first the rules were shaped for advice on diet and management. In relation to diet, which was so important a part of our teaching, we did not begin, like the Plunket System, with a fully fledged policy, but worked out gradually the principles of good diet for mothers and babies, breast feeding being, of course, foremost in our teaching. So much was learnt during these years in the world outside that naturally there was much to keep in touch with.

The need for a hospital for sick babies was clearly seen quite early, and after a preliminary offer to the committee of the Adelaide Children's Hospital to provide money to build a ward for sick infants under two years—which was not accepted—a beginning was made with a hospital for babies of this age. It became impossible to cope with financial difficulties, and eventually the Government in 1917 took over the hospital, and developed Mareeba Babies' Hospital. We as honoraries of this hospital maintained close contact with the M.B.H.A. At this hospital much valuable work has been done in the investigation of problems both of diet and management which influenced our dietetic teaching. We made special efforts to prevent cross infection, prevent the high death rate among premature babies, and to attempt to solve other problems peculiar to infancy.

Our Central Committee was reinforced by the appointment of a Medical Council, comprising representatives of institutions dealing with the health of children and parents generally, of the British Medical Association and of the South Australian Government. This Council has assumed a gradually increasing importance for our work, and now has the privilege of having the professors of child health and of gynæcology and obstetrics as members. In 1937 a paid medical director was appointed on a part-time basis. Four years ago our first full-time director was appointed.

Our teaching has had much to do with the increase of the knowledge of feeding and management since 1909 throughout this State. I can well remember the ignorance both with regard to feeding and hygiene that prevailed when I began

practice in 1906. What my co-workers and I have learned since then is spectacular. We can show, like the Plunket Society, the saving of many lives of mothers and babies, the saving of much disease with its accompaniment of sorrow and anxiety. Indeed, we have on one, or perhaps two, occasions even rivalled New Zealand in the low rate of infantile mortality reached. In South Australia the figures were 60 per 1000 live births in 1909, and last year the figures were 20·71.

The thing is, as you, Sir, point out, that such work is worthy of much commendation, and when I look at the devoted work of thousands of women, doctors and especially sisters and committee members over the last 52 years, I can only say how wonderful it is that such a great tree should grow from such tiny seed. There is, of course, very much more that could be said and written. Our first two directors, Dr. Elma Sandford-Morgan and Dr. Ruth Mocatta, even at part time, did yeoman service. I only wish that our various investigations could have been more fully written up.

I have written, may I add, because I am the remaining member of the original group involved.

Yours, etc.,

HELEN MAYO,
Chief Honorary Medical Officer.

Mothers and Babies' Health Association,
199-200 North Terrace,
Adelaide.
May 26, 1961.

[Dr. Mayo is quite right. We confess to having overlooked the paper to which she refers and offer her our apologies.—EDITOR.]

THE TREATMENT OF SEVERE HYPERTENSION WITH GUANETHIDINE.

SIR: Subsequent to the publication of the article by Dr. A. J. Barnett *et alii* on "The Treatment of Severe Hypertension with Guanethidine" (MED. J. AUST., May 13, 1961), it has been brought to my attention that doctors following the high initial dosage schedule of guanethidine ("Ismelin") used in this article may incur serious overdosage. Dr. Barnett's article dealt with a group of patients suffering from severe hypertension closely supervised in a special clinic for hypertensives. As the trial dated from the earliest period of clinical usage of guanethidine, the dose was set at an arbitrary level.

In the light of extensive clinical investigation, the manufacturers recommended that the dose of guanethidine must be adjusted carefully to the needs of each individual patient. Because guanethidine is slow to have its full effect, it is advised that a commencing dose of 10 mg. orally once a day be employed, and adjustments with 10 to 20 mg. increments should be made cautiously at intervals of one week. A maintenance dose should thus be achieved, and the average is from 30 to 60 mg. daily. In this way, the exact dose for each patient can be determined and serious hypotension will not be encountered. Such a régime appears desirable where out-patient treatment is being carried out either at hospitals or in general practice.

Yours, etc.,

VIVIAN G. BALMER,
Medical Director.

Ciba Company Proprietary Limited,
Orion Road,
Lane Cove,
New South Wales.
June 1, 1961.

ISONIAZID ALONE?

SIR: In the Journal of May 20, in the section headed "Current Comment", there appears an article under the above heading. In this the writer discusses the use of isoniazid alone in the treatment of tuberculosis, and the final few lines of the article read: ". . . if the medical attendant is satisfied that no cavitation is present in his patient (and this may mean tomographic study), treatment by isoniazid alone is sound therapy."

This precept is directly opposed to the principles of chemotherapy in tuberculosis accepted in the United Kingdom and in this country. Consequently it seems worth while to examine the evidence on which this opinion is based. This is a study sponsored by the United States Public Health Service Tuberculosis Therapy Trials, in which 22 tuberculosis hospitals participated.

Patients were divided into three groups. The members of the groups received respectively isoniazid alone, streptomycin one gramme twice weekly plus isoniazid, and streptomycin one gramme twice weekly plus PAS. All patients who remained in hospital for 40 weeks whilst receiving one of these combinations of drugs were accepted for the follow-up. Of course, not one of these combinations would be considered adequate by British or Australian chest physicians; but as the trial commenced in 1952, one would not wish to be too critical, except that the findings are used to support views on which your contributor bases his argument. All patients accepted for the follow-up were sensitive to isoniazid and streptomycin at the commencement of the trial. The numbers accepted for the three regimens in the order in which the combinations are quoted above were respectively 150, 131 and 130. At the end of 40 weeks, tubercle bacilli could still be recovered in 49 patients (approximately 30%) of the 150 patients having isoniazid alone, in 13 (approximately 10%) of the 131 patients having streptomycin and isoniazid and in 27 (approximately 20%) of the 130 patients having streptomycin and PAS. At the end of five years, nine of the first group, nine of the second group and eight of the third group could not be traced. This left respectively 141, 122 and 122. Of the 141 patients having isoniazid alone, 92 (65·2%) were classed as inactive; of the 122 patients having streptomycin and isoniazid, 92 (75·4%) were inactive; and of the 122 having streptomycin and PAS, 89 (75%) were inactive.

In the treatment of tuberculosis with drugs there are three points of importance—(i) the short-term results, (ii) the long-term results, and (iii) the development of drug resistance by the organism.

On the figures shown, the best short-term results were in the streptomycin-isoniazid group. The results with isoniazid alone are poor. The long-term results are bad for all groups, but worst in the isoniazid-alone group. The rather naïve claim is made that for patients whose immediate response is adequate, the prognosis is equally good whether treated initially with isoniazid alone or with a combination of drugs. The obvious comment is that only 65% of the patients traced who had isoniazid alone were stable after five years. In addition, the drug combinations in all groups were inadequate, and results in all groups after five years were poor. Consequently, the above claim has no validity as an argument in favour of isoniazid alone.

On the question of drug resistance, the trial gives virtually no information of value. It is claimed that the appearance of more patients with isoniazid-resistant organisms when this drug is used alone is primarily a result of less frequent reversal of infectiousness. The answer is that when isoniazid is used alone, resistance often develops very quickly, and long before the drug can become effective. This rarely occurs if the drug is given in an adequate combination. In the trial cited, of the 150 patients given isoniazid alone, 49 were still positive after 40 weeks. This does not surprise. It is a fair assumption that the great majority, if not all, of these patients had resistant organisms by this time. Of the remaining 101 patients, of whom 95 were traced, 15 had active disease after five years. It is likely that all these had organisms resistant to isoniazid.

In July, 1960, Crofton[1] was able to quote 260 patients treated in Edinburgh hospitals in 1953 and 1954, not one of whom had relapsed after three to five years. The standard practice in Edinburgh is to give initially to all new patients isoniazid 200 mg. daily, streptomycin one gramme daily and sodium PAS 15 grammes daily. In middle-aged and elderly patients, streptomycin one gramme twice a week is the dosage. Tests for sensitivity of the bacilli to the drugs are carried out for all patients, and subsequent administration of drugs is ordered accordingly. Isoniazid with intermittent streptomycin without PAS is not considered adequate therapy.

No information is available as to what happened to the patients from the end of the 40 weeks' follow-up to the time of the five years' follow-up. It is reasonable to assume that some of these became active and were treated.

The total number of the original 150 patients who developed drug-resistant organisms cannot be stated, but was probably substantial. How many healthy persons were infected by this group is anybody's guess. Your contributor

[1] *Brit. med. J.*, 1960, 2:370.

is worried about the cost of PAS. This drug is not cheap, but the cost to the Commonwealth Government of one patient only, infected by resistant organisms because of inadequate chemotherapy, would purchase a lot of PAS.

Finally, to come to the paragraph "quoted in full" by your contributor: every physician who treated patients suffering from tuberculosis in the pre-chemotherapy era knows that a number of patients recovered as a result of sanatorium regimen alone. Undoubtedly there are patients of this type coming along now, who would recover no matter what drug should be given, or even if no drug were given. However, there is no way of knowing these patients, and consequently all must be given the best treatment available.

It is strange that on evidence quoted above, your contributor should line up with what he himself describes as "a small minority group" and completely ignore the classic trials of the Medical Research Council of England.

If any physician should be tempted to use isoniazid alone, my advice would be to read the reports of these trials for himself, or to read the admirable articles on "Drug Treatment of Tuberculosis" published by Professor John Crofton last year.[2]

Yours, etc.,

C. G. BAYLISS.

147 Macquarie Street,
Sydney.
May 29, 1961.

SIR: The United States Public Health Service and Walsh McDermott are so authoritative that one hesitates to question your article in "Current Comment" (MED. J. AUST., May 20). However, one must recall that McDermott's advocacy of isoniazid alone applies chiefly to its use in under-developed countries, where there is as yet no practicable alternative and where drug cost is a major factor. Under these conditions a high failure rate in treatment is acceptable. In Australia, where an elaborate system of case-finding and treatment has been created with elimination of tuberculosis as its aim, drug cost is a relatively minor factor and treatment failure a much greater tragedy.

The advantages of isoniazid alone in carefully selected cases are, as you say, decreased toxicity, convenience and economy. Its disadvantage is an increased number of failures of primary treatment and a concomitant increase in the numbers of isoniazid-resistant organisms in the community.

There is no doubt that the use of combined drugs, usually PAS or streptomycin or both, with isoniazid increases the discomfort to the patient and the number who develop toxic reactions. If the patient is in hospital, toxic reactions can be handled with little danger. In this regard it must be remembered that isoniazid itself is not without its own toxic troubles.

In Australia unpublished figures suggest that between 4% and 7% of initially isolated strains of *Mycobacterium tuberculosis* are resistant to isoniazid, and consequently the lesions from which they come are not likely to be affected by the drug except to increase the degree of resistance of the organism. Though this percentage is small, the failure rate is certain and can be avoided by multiple-drug treatment.

While all new cases deserve individual consideration regarding their drug plan, the following is a basis for treatment which, with minor modification, would, we believe, be acceptable to most Australians who treat many cases of tuberculosis.

1. All cases of active tuberculosis should be admitted to hospital and treated there until sputum-negative.

2. All cases should receive as initial chemotherapy more than one drug, and therapy should be maintained wherever possible with a proved effective drug combination. The actual combination of drugs depends on the physician's preference and experience, the patient's capacity to take drugs, the nature of his disease and the results of laboratory tests of sensitivity.

3. Isoniazid alone should be restricted to: (*a*) disease prophylaxis in certain individuals who have positive tuberculin skin tests and no other evidence of active tuberculosis; (*b*) follow-up suppressive treatment in patients whose sputum has been rendered non-infectious by multiple drug therapy, and who have severe discomfort with a combination drug (usually PAS); (*c*) cases who cannot be given multiple drug treatment because of intolerance or drug reaction. Every effort should have been made, however, to overcome such difficulties.

While we do not doubt that isoniazid alone will produce good results if restricted to the type of cases mentioned in your article, we fear and respect the tubercle bacillus, and deprecate anything, however well-intentioned, which may engender the same mental attitude among physicians and patients which was associated with "one shot" treatment of gonorrhœa.

In this community, where drugs and beds are freely available for tuberculosis patients, every case whose sputum is unconverted is a personal and public health tragedy, and, in short, anything which may lead to that sad result should be examined very critically before it is accepted as sound therapy.

Yours, etc.,

ELLIS ABRAHAMS, M.D., M.R.C.P.,
CYRIL EVANS, M.R.C.P.

81 George Street,
Brisbane.
June 1, 1961.

[2] *Brit. med. J.*, 1960, 2: 449.

THE PHILOSOPHICAL SCIENTIST.

SIR: In Number 20 of your Journal, you quote Sir Francis Walshe as supporting A. N. Whitehead's view that "for natural science everything perceived is in nature". Walshe concludes that natural science should not get bogged down in philosophy. Evidently it should accept unquestioningly Whitehead's view.

Things are not as simple as that, Mr. Editor. In accepting that view scientists, whether they know it or not, are accepting that philosophy known as materialism. It is idealism which suggests that colours and smells are merely symbols. Materialism in philosophy has existed for more than 2000 years. It has certainly not stood still. So the scientist must in fact ask himself which materialism he is accepting.

Owing to the great discoveries of the last century—e.g. the cell, the transformation of energy, evolution, and now electrons—philosophical materialism has moved from a mechanical position to a dialectical one. It now regards the world as a complex of processes always beginning and ending with the constant creation of something new; *pari passu* the philosophers have discovered that the old simple logic is not sufficient, and higher forms have been evolved.

Surely the scientist who has to deal with the complex moving changing universe should be familiar with the relatively new modes of thought that are necessary for its handling. Hegel, although an idealist, in his science of logic made the main contribution in this field.

May I, then, suggest that the scientist, far from getting bogged down in philosophy, should avail himself of its contribution to thinking? It has been truly said that thinking is not a spontaneous natural talent, it requires training. Scientists surely need to apply trained thinking to the results of their investigations.

Yours, etc.,

G. P. O'DAY, M.D.

196 Nepean Road,
Aspendale,
Victoria.
May 29, 1961.

HOSPITAL ACCOMMODATION FOR MATERNITY AFTER-CARE.

SIR: May I bring to the notice of your readers a situation which, I feel, is somewhat unique, considering the pressure on hospital accommodation for maternity after-care cases?

The Presbyterian Babies' Home, 19 Canterbury Road, Camberwell, has a modern private wing to provide post-maternity care for mothers with their babies immediately on leaving a maternity hospital, or at any time up to six months after the birth of the child. The staff of the home consists of infant welfare trained sisters, mothercraft staff nurses, and trainees, and is equipped to handle any special problems of feeding and general care. The wing is registered for Commonwealth Hospital Benefits.

This wing is at present empty, and for some months has averaged only one-quarter of its accommodation. As the

fees are reasonable, I can only conclude that this service is not sufficiently known. I trust this letter will bring the service to the notice of those who require it. Any further information would be available by telephoning 82-6789, after-care wing 82-6682.

Yours, etc.,

A. S. COLLIVER,
Manager.

Presbyterian Babies' Home,
19 Canterbury Road,
Camberwell,
Victoria.
May 30, 1961.

HIATUS HERNIA.

SIR: In Dr. Hamley Wilson's admirable review of the problem of hiatus hernia, mention was made of the difficulty of distinguishing between precordial pain arising from hiatus hernia and that of ischæmic heart disease. This is often a difficult problem, and in addition to the points that Dr. Wilson has made, one could add that if the patient gives a history of apparent angina for twenty or more years, one should suspect the possibility that the cause is non-cardiac and probably due to hiatus hernia. And again, if the patient volunteers that standing or fasting causes the symptoms to remit, this is also suggestive. From the clinical point of view, if the patient suffers from chest pain related to stair or hill climbing or to emotion, angina is probably present whether or not a hiatus hernia coexists.

With regard to the electrocardiogram, I would question the validity of his statement: "Patients with hiatus hernia associated with precordial symptoms frequently exhibit inversion of the *T* wave. If this is the only electrocardiographic change, then it is presumptive evidence that a hiatus hernia is the cause of the symptoms."

J. H. Baylis *et alii*[1] in 1955 observed the effects of distending the lower œsophagus with a balloon in normals and in patients with cardiac disease. In neither case, despite the production of pain, did the electrocardiogram show any change. Moreover, when massive distension of the œsophagus was produced by a barium suspension in achalasia of the cardia, axis shift alone in the electrocardiogram was recorded, but no *T*-wave change occurred. In view of the finding that there was no evidence of reflex narrowing of the coronary arteries in their cases, I would regard an inverted *T* wave in the same light as I would in the absence of an hiatus hernia.

Yours, etc.,

ZELMAN FREEMAN.

149 Macquarie Street,
Sydney.
May 30, 1961.

SIR: Mr. Hamley Wilson's survey of a series of cases of hiatus hernia (MED. J. AUST., May 27, 1961) is to be especially commended in stressing the importance of a good history in assessing the significance of this condition in the individual patient. It is heartening to see such a view expressed in an age when attention is focused so much on special investigations.

The high incidence of hæmorrhage and anæmia found in this series is in sharp contrast to my observations in another series (MED. J. AUST., January 4, 1958). The discrepancy clearly arises in the different sources of our respective material, Mr. Wilson's being derived from a surgical practice and public hospital medical in-patients and mine from a medical practice and a public hospital medical out-patient clinic. Both are selected series and cannot give any indication of the frequency of these complications in hiatus hernia generally. Similar unwitting selection of patients almost certainly accounts for the wide variation in published series of 3·4% to 66% for the incidence of anæmia and 2·5% to 33% for the incidence of hæmorrhage as complications of hiatus hernia. Mr. Wilson's figures indicating two or three medical admissions yearly to a large public hospital for hæmatemesis undoubtedly due to hiatus hernia fail to bear out his statement that hæmatemesis occurs quite often as a result of hiatus hernia.

The low incidence of the "anginal" presentation of hiatus hernia is also probably the result of the origin of the series. A practising surgeon would naturally not encounter this type of problem frequently, while an astute admitting officer in a public hospital, having satisfied himself that no cardiac catastrophe has occurred, will steer these cases to the out-patient department rather than into his few empty beds. This will lower the incidence of this type of case in the medical beds of a public hospital.

Mr. Wilson draws attention to the interesting problem of the patient who has evidence of both hiatus hernia and ischæmic heart disease, where the origin of the pain may be exceedingly difficult to determine. There is no infallible special test, and the history represents the best guide in these cases. However, where a decision may hinge on the patient's answer to one or two questions, one must be very sure of the accuracy of the answers. Frequently it is desirable to observe the patient over a period of time, when in my experience in most cases the heart disease comes to dominate the clinical picture.

Mr. Wilson's statement that *T*-wave inversion in the electrocardiogram is presumptive evidence that the hiatus hernia is the cause of chest pain in a doubtful case, rather than ischæmic heart disease, is puzzling. I could not agree that such changes, nor in fact a normal electrocardiogram, support such a diagnosis.

Yours, etc.,

LUKE MURPHY.

33 Collins Street,
Melbourne.
June 1, 1961.

[1] *Quart. J. Med.*, 1955, 24: 143.

SOME HAZARDS OF MODERN THERAPY; OPERATING THEATRE DEATHS AND THEIR PREVENTION

SIR: The papers of Dr. Sands and Dr. Speirs (Journal, May 6, 1961) have come at an opportune moment. They are trying to persuade us to reappraise the value of many methods of treatment which were hailed as advances. It is a deep sense of responsibility founded on wide experience which prompts them. We should be thankful that such doctors are capable of confessing their own errors and learning not to repeat them.

In replying to the discussion (page 673) Dr. Sands mentioned two asthmatic patients who had died of polyarteritis nodosa while taking steroids. As you know, this is a pet subject of mine; my dislike of this method is founded on my own errors and my memory of avoidable deaths in patients with non-fatal diseases. Every day some new indication for steroids, recommended perhaps by a globe-trotting pathologist who has never had the responsibility of treating a patient, is formally adopted by physicians who feel they have to keep up to date.

Daily we observe the growth of the N.H.S. list of specified diseases "suitable" for steroids. Many of these new diseases have hazy outlines and few diagnostic criteria except the enthusiasm of the doctor. Recently O. Hilmar Iversen and E. Ofsted[1] have reminded us that early tuberculosis may cause anæmia. Patients sent to hæmatologists and given steroids for "hæmolytic anæmia" have quickly succumbed to the spread of tuberculosis.

In May, 1958, at a British Medical Association meeting at Colac, I spoke of the increased dangers to every organ, including the heart, undergone by a patient taking steroids. I said cortisone and its derivatives had all the marks of dangerous drugs of addiction. The meeting was not reported. A doctor (aged 50) in my audience unfortunately died suddenly a few weeks later. He had been taking cortisone for rheumatoid arthritis for several months.

Yours, etc.,

MICHAEL KELLY.

410 Albert Street,
East Melbourne.
May 29, 1961.

MONITORING THE FŒTAL HEART RATE.

SIR: I understand that some of your readers have inquired about the types of apparatus available for continuously monitoring fœtal heart rate during labour and delivery. I feel it may be of interest briefly to describe the instrumentation currently used for this purpose in my Research Institute, and to say something of the philosophy underlying our study. I hope later to submit to you a more specific account of its achievement.

The signal source for the monitor is the fœtal electrocardiogram obtained by a vaginal probe. After suitable amplification the fœtal complexes are continuously recorded.

[1] *Acta med. scand.*, 1960, 160: 291.

At the same time the signal is fed via a band-pass filtering system to trigger a cardiotachometer. The cardiotachometer output enables a continuous tracing to be made of the *instantaneous* fœtal heart rate, beat by beat.

Before labour, by using abdominal electrodes, fœtal viability and multiple pregnancy may be diagnosed when other means are inadequate. In the supervision of labour itself this instrument has none of the defects intrinsic to the stethoscope. The fact that fœtal heart sounds are inaudible or too faint for accurate counting is no longer of consequence. Human error, an averaged count, and above all infrequent sampling are all abolished. The mother is not restricted. Neither her movements, uterine contractions nor obstetric manipulations interfere significantly with the recording. There is no microphone needing critical placement. Environmental noise has no influence.

I must emphasize, however, that apart from such worthwhile practical advantages, our monitor is at the present moment primarily a research tool, electronically sophisticated and expensive. I do not believe we yet know with any precision the limits of normal fœtal heart rate, much less how to diagnose accurately fœtal distress. If we assume that heart rate reflects the status of the fœtus in utero, then the continuous and permanent records so obtained provide an objective background against which the influence of the many factors bearing on fœtal environment may be assessed. Moreover, examination of the configuration of the electrocardiogram is pointing to the mechanisms underlying certain heart rate "patterns". But to be fully meaningful a study such as this must be given a strong epidemiological bias, prospective as well as retrospective. With the help of our pædiatric colleagues we have begun a long-term follow up of these children already studied in utero. Thus we may discover a correlation between anomalies in their neurological or behavioural development and changes in their heart rate patterns recorded long before. This, and no mere arbitrary figure, is surely the very essence of "fœtal distress".

A practising obstetrician might well ask: "Is continuous monitoring of the fœtal heart really a practical measure?" The answer is that the wide application of this method of fœtal observation depends on two factors: (i) a simpler and less expensive instrument; (ii) the working out of a series of patterns of heart rate recording related to the various complications of late pregnancy and labour. The first factor will not present any great difficulty; the second factor is the more difficult, and it is for this factor that the present expensive instrumentation has been designed.

Yours, etc.,

BRUCE T. MAYES,
Professor of Obstetrics,
Director of Queen Elizabeth II Research Institute.

The University of Sydney,
Sydney.
May 23, 1961.

EXTERIOR GESTATION AND LIFE SET.

SIR: The article by Professor John Bostock and Marjorie Shackleton in the issue of May 13 is so full of psychiatric jargon, statistical freedom and psychoanalytic innuendoes that it is difficult to know where to start. But firstly, from a common-sense point of view, it can hardly be doubted that enuretic children suffer from social maladjustment, poor school performance and reluctance to assume responsibility by the very nature of the disorder itself. Even the non-enuretic child suffers from a feeling of acute shame when once at school he happens to wet his pants.

The concept of a "life set" as laid down can only be regarded as one of psychiatric gloom. Yet this is in fact not the case with enuretic children, for where child psychiatric services have been in operation for several decades it has become apparent that the number of children presenting for treatment has rapidly declined. The most probable reason for this state of affairs is that general practitioner knowledge of the disorder has meant that only a few severe and intractable cases ever reach the child psychiatrist.

That 29 of the children in this series were bottle-fed is no justification for Kleinian theory. Mothers who for legitimate reasons cannot feed their babies at the breast are likely to be those very same mothers who again, for possibly legitimate reasons, are not able to give the baby all the care and attention it deserves.

I find it hard not to believe that this article is written with a basis in the theory of Melanie Klein and Sigmund Freud. That the bias of the authors should be hidden behind verbose phraseology reduces such theory to an obscurity which makes it impossible for any clinician to judge its correctness. More likely he will become suspicious that the person who has the best opportunity for first-hand knowledge—namely the psychiatrist—is self-conscious about its validity.

Rejection, sibling rivalry, compulsive behaviour, inadequacy, reality, dependent traits, aggression, realistic failure, inferiority, emotional maturity, over-stimulation, over-compensation, over-mothering, insecurity, are some of the words used in this article; yet there is not one of these which is sufficiently measurable to justify the authors' conclusions, though without some of their phraseology some of the conclusions would be reached by common sense.

I have no idea what nyctophobia is.

Yours, etc.,

C. G. JUDGE.

Larundel Psychiatric Hospital,
Bundoora,
Victoria.
May 29, 1961.

THE NECESSITY FOR THE SUPPLY OF STERILE OPHTHALMIC DROPS BY THE NATIONAL HEALTH SERVICE.

SIR: My paper "Some Factors in the Prevention of Sepsis in Ophthalmic Surgery" (MED. J. AUST., 1961, 1: 356) described disastrous results following the use of contaminated eye drops. When opening the discussion on one of my preceding papers, a Sydney doctor[1] stated that recently three of his patients had undergone cataract extractions in the same theatre and were nursed in the same ward. The three eyes developed an identical clinical picture with severe iridocyclitis and hypopyon. From two the fungus *Cephalosporium* was isolated. Evisceration of two eyes proved necessary, but though this was avoided in the third patient, she became blind in her only eye. A fungus was isolated from some drops used in these cases.

In Adelaide in the past two months, three relevant examples have come to my notice. One doctor had a patient suffering from chronic glaucoma who, on his advice, had been instilling pilocarpine drops for the preceding two years. Some weeks ago this patient obtained from his suburban chemist a fresh bottle of drops on a National Health Service prescription. He at once noticed that the drops stung the eye, and within 24 hours consulted his ophthalmologist, who diagnosed acute conjunctivitis. Cultures from both the conjunctival sac and the bottle of eye drops grew *Pseudomonas pyocyanea*. The bottle was stoppered with a cork, which is a well-known source of *Pseudomonas*. A second doctor did a lens extraction in a private hospital and the wound became infected. Culture of the conjunctiva produced no growth, but the atropine drops used yielded a poor growth on laboratory media of a Gram-negative filamentous organism, probably belonging to the genus *Fusiformis*. This constitutes a distinct hazard in the eye and was the probable cause of the ocular infection. A third doctor had a patient suffering from dacryocystitis in a private hospital. The wound became infected with *P. pyocyanea*, and three bottles of ophthalmic drops that had been used were then found to be contaminated with the same organism. Subsequently, two fresh bottles were obtained from the hospital's chemist and were cultured before use. Both yielded the same species.

Surely no further evidence is required to prove that all ophthalmic drops should be sterile. One is well aware that the National Health Service pays for certain eye drops that have been provided according to the accepted standards of the British Pharmacopœia and the British Pharmaceutical Codex, but these standards, though demanding cleanliness, unfortunately require neither sterility nor an efficient bacteriostatic. The Commonwealth *Pharmaceutical Benefits Act* should be amended to state the necessity of, and provide payment for, the sterilization of eye drops.

The older pharmacists are not trained and few pharmacists are equipped to prepare such sterile solutions. It is therefore to be hoped that wholesale firms will do so. Nevertheless, the pharmacist who has a pressure cooker, a supply of ordinary glass dropper bottles and adequate training, can fulfil our requirements; but it is doubtful if he could

[1] *Tr. ophth. Soc. Aust.*, 1959, 19:56.

guarantee the sterility of the contents of any of the present "Polythene" bottles which he might prepare.

The ultimate responsibility for the matter rests with the medical profession, and I suggest that we all, when writing a prescription for any type of ophthalmic drop, state on the prescription that they shall be prepared in a sterile manner, that an efficient bacteriostatic be incorporated where possible, and that they be supplied in some form of dropper bottle.

Yours, etc.,

104 Brougham Place,
North Adelaide.
May 26, 1961.

D. O. CROMPTON.

Medical Practice.

PROCUREMENT AND DISTRIBUTION OF RADIO-ISOTOPES IN AUSTRALIA.

SINCE 1946, when artificially produced radio-isotopes first became regularly available from overseas sources of supply, the Commonwealth Department of Health has, through its Commonwealth X-Ray and Radium Laboratory, provided a central procurement service for those wishing to use radio-isotopes for any purpose in Australia. The Department of Health through its Laboratory has, in exercising the control vested in it through Item 23 in the Third Schedule of the Customs (Prohibited Imports) Regulations, maintained a supervision of the safe and useful application of these radio-isotopes. In addition the Laboratory has, over this period, provided technical assistance and advice in the various fields of application of radio-isotopes.

Now that the Australian Atomic Energy Commission is in a position to prepare, in its own reactor, some of the radio-isotopes required for various purposes in Australia, and consequent to the establishment some years ago by the Commission of an advisory service in the use of radio-isotopes in industry and research, the Department of Health and the Australian Atomic Energy Commission have agreed on a redistribution of the activities previously carried by the Department of Health. For the information of users and potential users of radio-isotopes in Australia, the procurement and advisory services which will be provided by the Commonwealth Department of Health and the Australian Atomic Energy Commission are set out below in various categories.

1. Procurement.

(a) Radio-Isotopes for Use on Humans.

The Commonwealth Department of Health, through its Commonwealth X-Ray and Radium Laboratory, will continue the service it has provided in this field. The Laboratory will continue to obtain bulk supplies of the long-lived radio-isotopes from overseas or from the Australian Atomic Energy Commission, and will dispense and distribute individual patient doses. Short-lived radio-isotopes for use on humans within the production capacity of the Commission will, if it is more appropriate, be ordered by the Laboratory for direct dispatch to the user from the Australian Atomic Energy Commission.

Applications for radio-isotopes for use on humans should be forwarded, as in the past, to the chairman of the therapeutic trials committee in the respective State for consideration and transmission to the Commonwealth X-Ray and Radium Laboratory. The various State therapeutic trials committees are responsible to the Standing Committee on Radio-Isotopes of the National Health and Medical Research Council, which is finally responsible for approving an application. The address of the Standing Committee on Radio-Isotopes is: c/o Commonwealth X-Ray and Radium Laboratory, 30 Lonsdale Street, Melbourne, C.1.

The procedure to be followed by users of radio-isotopes on humans is unchanged from that which has applied over a number of years.

(b) Radio-Isotopes for Medical Research by the Medical Profession, Hospitals, Medical Departments of Universities and Other Organizations

Applications and orders for radio-isotopes for medical research (that is, research the results of which may ultimately be applied to human beings) should be forwarded, as at present, to the Director of the Commonwealth X-Ray and Radium Laboratory at 30 Lonsdale Street, Melbourne, C.1. The Laboratory will either procure and arrange delivery of the material if it is to be imported, or authorize supply by, and place an order for supply on, the Australian Atomic Energy Commission. In the latter case the Australian Atomic Energy Commission will arrange dispatch direct to the user against the order of the Commonwealth X-Ray and Radium Laboratory.

As in the past, the Commonwealth X-Ray and Radium Laboratory will forward an account to the user against the official order it receives.

(c) Radio-Isotopes for Non-Medical Research and for Commercial and Industrial Purposes.

Applications and orders for radio-isotopes for non-medical research and for commercial and industrial purposes should be forwarded to The Director, Australian Atomic Energy Commission, Research Establishment (Attention Isotopes Section), Private Mail Bag, Sutherland, N.S.W. The Commission will undertake the production and direct dispatch or procurement from overseas and delivery. The Commission will forward an account to the user against the official order for supply.

2. Advisory Services.

The Commonwealth X-Ray and Radium Laboratory and the Australian Atomic Energy Commission will provide an advisory service on the availability, possible application and safe use of radio-isotopes in their respective fields as outlined above.

3. Customs (Prohibited Imports) Regulations.

The Commonwealth Department of Health, through its Commonwealth X-Ray and Radium Laboratory, will continue, by authority under the Customs (Prohibited Imports) Regulations, to authorize entry of radio-isotopes imported in categories 1 (*a*) and (*b*) above. For importations under category 1 (*c*), the Australian Atomic Energy Commission will issue the necessary authorization under the Customs (Prohibited Imports) Regulations, provided that the Commonwealth Department of Health raises no objection.

Importers of equipment incorporating radioactive sources are reminded that they must also observe the provisions of this agreement in so far as the radioactive sources are concerned.

4. Operation of New Procedures.

The new procedures will operate as from July 1, 1961. However, to avoid any confusion or disruption of service, the Commonwealth X-Ray and Radium Laboratory will undertake the procurement and delivery of applications and orders in category 1 (*c*) above received prior to that date.

5. Radioactive Substances Acts and Regulations.

The attention of users and potential users of radio-isotopes is directed to the radioactive substances acts and regulations of the various States administered by the health departments of those States.

D. J. STEVENS,
Director, Commonwealth X-Ray and Radium Laboratory,
Melbourne.

Medical Matters in Parliament.

HOUSE OF REPRESENTATIVES.

THE following extracts from *Hansard* relate to the proceedings of the House of Representatives.

May 2, 1961.

Papua and New Guinea—World Health Organization Assistance.

MR. CAIRNS asked the Minister for Territories, upon notice:

1. Has the Administration of Papua and New Guinea refused direct aid from the World Health Organization?

2. If not, what direct aid has been received, accepted or proposed for acceptance?

3. Is he able to say whether the Administration of the British Solomon Islands accepted World Health Organization direct aid which has already resulted in anti-malarial spraying of at least half the islands by professional teams?

4. Will the Administration of Papua and New Guinea accept this aid; if not, why not?

5. Does the Administration of Papua and New Guinea propose to continue with spraying by villagers?

6. Is this form of spraying ineffective and dangerous because its inefficiency allows surviving mosquitoes to build up resistance?

7. Do estimates exist which show that this method would take up to 17 years to cover the Territory?

MR. HASLUCK: The answers to the honourable member's questions are:

1. No.

2. Direct aid has been accepted in the form of fellowships for the training of medical personnel on the basis of two or three fellowships annually for several years.

3. No, but it is believed not. Some anti-malarial spraying has been done in the British Solomon Islands Protectorate by the Papua and New Guinea Department of Public Health to ensure that there is no transmission of malaria in an area in Papua and New Guinea controlled by spraying. It is believed this spraying has been more extensive than any done in the Protectorate by the World Health Organization.

4. The Administration of Papua and New Guinea does not intend to accept additional aid from the World Health Organization in malaria control. It has the potential to establish its own Territory-wide programme, though in many areas local technical information still has to be accumulated.

5. No. All spraying is now done by professional teams.

6. No, although it is more expensive, because extra supervision, extra spray and extra pumps are required.

7. No.

May 3, 1961.

Papua and New Guinea.

MR. BEAZLEY: I ask the Minister for Territories: Have the Australian authorities in Papua and New Guinea accepted the decision of the Eighth World Health Assembly of the World Health Organization in 1955, at Mexico City, to aim at the total eradication of malaria? Have they caused to be studied in Papua and New Guinea any development of the tendency feared by the World Health Organization—namely, that certain mosquitoes carrying malaria have become resistant to residual insecticides such as D.D.T.? Do the Australian authorities in the Territories ask for assistance from the Food and Agriculture Organization and the World Health Organization in the elimination, respectively, of malnutrition and endemic diseases such as malaria and hookworm, as do the Dutch in West New Guinea? Is it still true to say, as Dr. Gunther informed the Political Science Conference in 1957, that because of a curtain of disease, notably hookworm and malaria, we have never seen the Papuan people at 100 per cent. health and efficiency?

MR. HASLUCK: I am not in a position to answer the technical questions that the honourable member has asked, and I suggest that at least that portion of his question be put on the notice-paper. So far as our relationship with the World Health Organization is concerned we have the closest possible relationship with that organization. In the matter of malaria eradication we have had a visit from an expert of the World Health Organization to the Territory who furnished us with a report, and our own officers have, under fellowships provided by the World Health Organization, attended several seminars and courses to help them in their work. Generally speaking—and I speak subject to possible error on the technical points—there are considerable differences of opinion among persons of good standing about the best method of eradicating malaria. Our own Department of Health in the Territory, following the best judgement available to it, has recommended a course which varies in some respects from the course that has been recommended by the World Health Organization. That is a matter of judgement. I have confidence that my own officers have made a proposal which is soundly based and suited to the needs of the Territory.

MR. BEAZLEY: Eradication is their objective?

MR. HASLUCK: That is among the technical points on which differences occur. There is a difference of judgement between experts whether eradication or control is the best method of tackling this problem. The matter is not a question of the intensity or the earnestness of the effort. The question is solely one of choosing the method most likely to achieve quickly the best results. If the honourable member will put the remaining part of his question on the notice-paper, I shall supply a detailed answer.

Aged Persons Homes Act.

MR. MCIVOR: My question is directed to the Minister for Social Services. Are there any indications of a decline on the applications for grants under the Aged Persons Homes Act? Is the Minister in a position to inform me of the exact amount of the grant approved under the act following the application of the Westhaven Aged People's Home in the electorate of Gellibrand?

MR. ROBERTSON: I am happy to inform the honourable member that the volume of applications for assistance under the Aged Persons Homes Act is increasing from year to year. The total of grants approved under the act since its inception is approximately £9,250,000. Grants approved in the current financial year, a few weeks of which have still to run, will exceed £2,127,000. I regret that I cannot recall the exact amount of the grant approved as a result of the application made by the Westhaven Aged People's Home in the federal electorate of Gellibrand, but from memory it exceeded £132,000, this being one of the largest grants ever made under this legislation in any part of the Commonwealth. I am indebted to the honourable member for Gellibrand for the assistance he has given me in the matter.

Commonwealth Serum Laboratories, Parkville, Victoria: Report of Public Works Committee.

MR. DEAN: In accordance with the provisions of the Public Works Committee Act 1913-1960, I present the following report:

> Report relating to the proposed construction of a new general laboratory building for the Commonwealth Serum Laboratories at Parkville, Victoria.

and I move—

> That the report be printed.

The committee believes that the present unsatisfactory conditions at Parkville should not be allowed to persist. These laboratories could not meet, without this additional accommodation, the demands which are arising from Australia's increasing population for biological products such as human and veterinary vaccines and toxoids. The committee finds that the proposed site is suitable, and the proposed building should meet requirements for twenty years. The committee recommends construction to the size and design proposed.

Question resolved in the affirmative.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Annual Subscription Course.

THE following lectures in the annual subscription course will be given by Professor George A. Perera, of the Department of Medicine, Columbia University, College of Physicians and Surgeons, Presbyterian Hospital, New York, Pfizer Lecturer for 1961: Wednesday, July 5, 2 p.m., "The Natural History of Hypertension", Maitland Lecture Hall, Sydney Hospital; Thursday, July 6, 8.15 p.m., "Diagnostic and Prognostic Evaluation of the Hypertensive Patient", Stawell Hall, 145 Macquarie Street, Sydney; Friday, July 7, 1.15 p.m., "The Family of Hypertensive Man", Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital; Monday, July 31, 2.15 p.m., case presentations and discussion, Lecture Theatre, Repatriation General Hospital, Concord; Tuesday, August 1, 1.15 p.m., "Aldosterone in Health and Disease", Students' Lecture Hall, St. Vincent's Hospital, Sydney; Wednesday, August 2, 2 p.m., "An Evaluation of Antihypertensive Therapy", Students' Common Room, The Royal North Shore Hospital, Crow's Nest; Friday, August 4, 8 p.m., "An Evaluation of Antihypertensive Therapy", Florey Lecture

Theatre, John Curtin School of Medical Research, Australian National University, Canberra.

The annual subscription course covers attendance at lectures by overseas lecturers and other specially arranged activities. The annual fee is £3 3s. from July 1. The fee for first-year and second-year resident medical officers is £1 12s. 6d. Last-minute alterations to meetings are notified by advertisement in *The Sydney Morning Herald* ("Public Notices") if possible on the day before the meeting.

Method of Enrolment and General Information.

Applications for enrolment on metropolitan and week-end courses should be made to the Course Secretary, Herford House, 188 Oxford Street, Paddington. Fees paid by medical practitioners who are in practice for attendance at revision and week-end courses conducted by the Committee, including living and travelling expenses, are deductible for income tax purposes (Taxation File No. AF/1865).

Overseas Visitors.

The following overseas visitors will shortly arrive.

August: Professor Sir Derrick Dunlop, Professor of Therapeutic and Clinical Medicine, University of Edinburgh, Norman Paul Visiting Professor for 1961 to Sydney Hospital; Dr. J. E. Caughey, Associate Professor in Neurology, University of Otago Medical School, Dunedin, New Zealand, Guest Lecturer to the Royal North Shore Hospital Reunion Week.

September: Dr. Murray Jackson, Psychiatrist, Middlesex Hospital, London; Professor K. Donald, Professor of Medicine, University of Edinburgh, Guest Lecturer to St. Vincent's Hospital Reunion Week; Professor Hubert de Watteville, Professor of Gynæcology and Obstetrics, University of Geneva; Professor Robert McWhirter, Professor of Medical Radiology, University of Edinburgh.

October: Dr. Dwight Harken, Associate Clinical Professor of Surgery, Harvard Medical School; Mr. Harold Dodd, Surgeon, St. Mary's Hospital Group, Paddington, and Senior Surgeon, King George Hospital, Ilford, and Royal Hospital, Richmond, England; the Honourable W. S. Maclay, Senior Commander, Board of Control, England; Mr. W. P. Cleland, Surgeon, Brompton Chest Hospital, Thoracic Surgeon, King's College Hospital, London.

November: Dr. Archer Gordon, Children's Hospital Society of Los Angeles, U.S.A.; Dr. Mary Crosse, Pædiatrician, Solihull Hospital, Little Bromwich Hospital, Birmingham.

Conference at Hornsby.

The Post-Graduate Committee in Medicine in the University of Sydney, in conjunction with the Kuring-gai Medical Association, will hold a post-graduate conference in the Nurses' Lecture Room at the Hornsby and District Hospital on Saturday and Sunday, July 1 and 2, 1961. The programme is as follows.

Saturday, July 1: 2 p.m., registration; 2.15 p.m., "Use and Abuse of Special Diagnostic Procedures, Including Use of Isotopes", Dr. T. I. Robertson; 3.45 p.m., "Pain and Paræsthesiæ in the Upper Limb", Dr. George Selby.

Sunday, July 2: 9.30 a.m., "Trends in Public Health in Relation to General Practice", Dr. E. S. A. Meyers; 11 a.m., "Upper Abdominal Pain with Particular Reference to Pancreatitis", Dr. Stanley Goulston.

The fee for attendance at the course is £3 3s., and those wishing to attend are requested to notify Dr. P. E. Gunton, Honorary Secretary, Kuring-gai Medical Association, 2 Pembroke Street, Epping, as soon as possible. Telephone: 86-3044.

MEDICAL POST-GRADUATE ACTIVITIES AT THE PRINCE HENRY HOSPITAL, SYDNEY.

WEEKLY GRAND ROUNDS, seminars and clinico-pathological conferences will be conducted by the University of New South Wales in the Nurses' Lecture Hall at the Prince Henry Hospital, Little Bay, commencing on Thursday, June 15, 1961. Clinico-pathological conferences and seminars will be held alternatively, beginning at 1.30 p.m., followed by medical grand rounds at 2.30 p.m. and surgical grand rounds at 3.45 p.m. Seminar topics scheduled to date are as follows: June 29, "Chemotherapy of Malignant Disease", Dr. A. Freedman; July 13, "Medical and Radiological Aspects of Bone Disease", Professor Bryan Williams; July 27, "Unusual Aspects of Subarachnoid Hæmorrhage", Dr. Ronald Fine; August 10, "Bell's Palsy", Professor M. J. Blunt; August 24, "Management of Congestive Cardiac Failure", Dr. Donald Anderson.

SEMINARS AT ST. VINCENT'S HOSPITAL.

SEMINARS are held at St. Vincent's Hospital, Sydney, in the Students' Lecture Hall on two Tuesdays in the month from 1.15 till 2 p.m. On the other Tuesdays a medical grand round is held. The programme for the second half of 1961 is as follows: July 11, "Leukæmia", Dr. P. Lamond. July 25, "The Relationship of Effort and Emotion to Myocardial Infarction", Dr. G. Hall. August 1, "Aldosterone in Health and Disease", Professor G. Perera, Pfizer Lecturer for 1961, Assistant Dean of Medicine, Columbia University, New York. August 8, "Long-Term Corticosteroids in the Treatment of Chronic Asthma", Dr. J. Benecke. August 22, "The Pros and Cons of Surgery in Aneurysm of the Abdominal Aorta", Mr. J. Fleming and Dr. J. Hickie. September 12, "Modern Trends in Public Health", Dr. C. Cummins, Director-General of Public Health. September 26, no seminar. October 10, "Dental Caries", Mr. Crocker, Superintendent of the Dental Hospital, Sydney. October 24, "Active Transport in the Small Intestine", Professor W. Hensley, Associate Professor of Medical Biochemistry, University of Sydney. November 14, "Depression", Dr. S. G. Rowe. November 28, "Chronic Pyelonephritis", Dr. B. O'Connell. December 12, "Hæmochromatosis", Dr. W. Hennessy.

SEMINARS AT SYDNEY HOSPITAL.

Programme for July and August, 1961.

SEMINARS are held on Wednesdays from 2 to 3 p.m. in the Maitland Lecture Hall, Sydney Hospital. They are preceded by medical grand rounds at 12 noon and by a pathological demonstration ("organ recital") at 1.30 p.m. The programme for July and August is as follows.

July 5: "The Natural History of Primary Hypertension", Dr. George Perera, Assistant Dean of Medicine, Columbia University, New York, U.S.A.; Pfizer Lecturer, 1961 (by courtesy of the Post-Graduate Committee in Medicine in the University of Sydney).

July 12: "Some Aspects of Cholesterol Metabolism in Health and Disease", Professor F. C. Courtice, Department of Experimental Pathology, The John Curtin School of Medical Research, The Australian National University, Canberra.

July 19: "Modern Tests of Endocrine Function—Useful, Controversial and Misleading", Dr. Peter Kendall (Endocrine Clinic).

July 26: "Inborn Errors of Carbohydrate Metabolism", Dr. G. M. Kellerman, Senior Lecturer, Department of Biochemistry, University of Sydney.

August 2: "Pathological Physiology of Hæmolytic Anæmia", Dr. B. G. Firkin (by invitation), (Hæmatology Clinic).

August 9: "Plasmocytomata and Multiple Myelomatosis", Dr. L. Atkinson, St. Vincent's Hospital.

August 16: "Epilepsy", Dr. W. H. Wolfenden (Neurology Clinic).

August 23: "Functions of the Renal Collecting Tubules", Dr. David Edwards (Clinical Research Unit).

August 30: "Addison's Disease, Part I", Professor Sir Derrick Dunlop, Professor of Therapeutic and Clinical Medicine, University of Edinburgh, Norman Paul Lecturer, 1961.

Royal Australasian College of Surgeons.

FINAL FELLOWSHIP EXAMINATION.

A MEETING of the Court of Examiners for the final examination for fellowship of the Royal Australasian College of Surgeons will be held in Melbourne, commencing on or

about Friday, October 20, 1961. Candidates who desire to present themselves at this examination should apply, on the prescribed form, to the Censor-in-Chief for permission to do so, before September 7, 1961. The appropriate forms are available from the Secretary, Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1.

Candidates who have already been approved by the Censor-in-Chief, but who have not yet presented themselves for the examination, may present for this examination, provided they notify the Secretary of their intention to do so by September 7, 1961. It is stressed that entries will close on this day, and late entries cannot be accepted.

The examination fee is £31 10s., plus exchange on cheques drawn on banks outside Melbourne, and must be paid to the Secretary by September 7, 1961.

The examination will be conducted in general surgery and in the special branches of ophthalmology, laryngo-otology, orthopædics, gynæcology and operative obstetrics, urology, thoracic surgery, neurosurgery, plastic surgery and pædiatric surgery.

At its meeting held on June 20, 1958, the Council of the College decided that candidates who possessed the fellowship of a body with which this College has reciprocity of primary examinations shall be exempted from the written part of the final examination, provided that there is no relaxation of apprenticeship prerequisites.

FACULTY OF ANÆSTHETISTS.

Final Fellowship Examination.

A MEETING of the Court of Examiners for the final examination for fellowship of the Faculty of Anæsthetists of the Royal Australasian College of Surgeons will be held in Melbourne commencing on or about Friday, October 20, 1961. Candidates who desire to present themselves at this examination should apply, on the prescribed form, to the Assessor for permission to do so, before September 7, 1961. The appropriate forms are available from the Secretary of the Faculty, Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1.

Candidates who have already been approved by the Assessor, but who have not presented themselves for the examination, may present for this examination, provided that they notify the Secretary of their intention to do so by September 7, 1961. It is stressed that entries close on this day and late entries cannot be accepted.

The examination fee is £31 10s., plus exchange on cheques drawn on banks outside Melbourne, and must be paid to the Secretary by September 7, 1961.

Subjects for the final examination are: (*a*) anæsthesia and analgesia, including pre-operative and post-operative care; (*b*) medicine and surgery; (*c*) the application of the basic sciences, including chemistry and physics, to the specialty of anæsthetics. The examination in each case is partly written, partly oral and partly clinical (including the examination of patients).

Candidates are advised that the primary examination for fellowship of the Faculty of Anæsthetists, Royal College of Surgeons of England, is reciprocal with the primary examination of this Faculty.

Graduates of an approved medical school who have obtained, prior to December 31, 1957, the first part of the diploma in anæsthesia of an approved medical school or college may, at the discretion of the Board, be allowed to present for the final examination for fellowship of the Faculty, provided they have fulfilled all other regulations.

In addition, a Board of Censors type examination will be held at the same time, and those eligible are: (i) foundation members of the Faculty of Anæsthetists of the Royal Australasian College of Surgeons, who were graduates of at least 25 years on January 1, 1960; (ii) members of the Faculty of Anæsthetists of the Royal Australasian College of Surgeons who hold a two-part diploma in anæsthesia or the fellowship of the Faculty of Anæsthetists of the Royal College of Surgeons of England; (iii) fellows of the Faculty of Anæsthetists of the Royal College of Surgeons of England who possessed their fellowship prior to January 1, 1960.

The conditions as outlined above in regard to the manner of entry and the examination fee also apply to the Board of Censors type examination.

University Intelligence.

THE UNIVERSITY OF NEW SOUTH WALES.

Appointment to the Chair of Microbiology.

THE Vice-Chancellor of the University of New South Wales, Professor J. P. Baxter, announces that Dr. M. R. J. Salton, Reader in Chemical Bacteriology, University of Manchester, has been appointed to the Chair of Microbiology. Dr. Salton graduated from the University of Sydney in 1945. Until 1948, he was a research officer in the C.S.I.R.O. Division of Food Preservation, Bacteriology Section. In 1948, he was awarded a studentship for post-graduate training at the University of Cambridge, and three years later he was admitted to the degree of doctor. After a visit to the United States as a Merck International Fellow, Dr. Salton was in 1953 appointed Broodbank Fellow in the Department of Biochemistry at Cambridge. In 1956, he was appointed lecturer in bacterial chemistry at the University of Manchester, and, in 1958, reader in chemical bacteriology. He returned to the United States in 1958-1959 and visited many centres of microbiology and biochemistry in America and Canada. He was visiting associate professor at the University of California. In 1960, he was invited to deliver the CIBA lectures on microbial biochemistry at Rutgers University.

Notes and News.

Nestlé Pædiatric Travelling Fellowships.

The Nestlé Company has generously endowed pædiatric travelling fellowships, which will be administered by a Committee established by the Australian Pædiatric Association. The travelling fellowships are intended to help young Australian pædiatricians to visit Europe, and possibly other parts of the world. Two types of fellowships will be awarded: (i) to provide travel expenses for a person taking up a post in a hospital abroad who is then returning to this country; (ii) to enable a person to attend pædiatric meetings or to spend a short period at some overseas centre or centres to study a particular problem. The principle of award will be to help Australian pædiatrics in the future, and fellowships will not be given solely as a reward for past services. Applications, giving full particulars and the names of two referees, should be sent, not later than September 30, 1961, to the Secretary, Nestlé Pædiatric Travelling Fellowships, c/o Royal Alexandra Hospital for Children, Camperdown, New South Wales.

National Days of Industrial Medicine.

The seventh "National Days of Industrial Medicine" will be held at Paris on September 17, 18 and 19, 1962. The subjects will be "Left-Handed Workers" and "Work Time-Tables". The Secretariat is at the following address: 15, rue de l'École de Médecine, Paris, VI°.

General Manager for Lederle Laboratories in Australia.

Mr. E. G. Walters, B.A. (Oxon.), has been appointed General Manager of the Australian Division of Lederle Laboratories, and also a Director of Cynamid Australia Pty. Ltd.

The Twelfth International Congress of Dermatology.

The Twelfth International Congress of Dermatology will be held in Washington, D.C. from September 9 to 15, 1962. The scientific session, the opening ceremonies and most of the social activities will be held either at the Park Sheraton or the Shoreham Hotel. A preliminary information booklet will be posted to all members of the International League of Dermatological Societies approximately one year before the meeting. Dr. Donald M. Pillsbury of Philadelphia is President of the Congress, and Dr. Clarence S. Livingood of Detroit is the Secretary-General. Suggestions and questions regarding the Congress are welcomed and should be addressed to the Secretary-General, Dr. Clarence S. Livingood, Henry Ford Hospital, Detroit 2, Michigan.

Permanent International Festival of Medico-Surgical and Scientific Films.

The tenth session of the Permanent International Festival of Medico-Surgical and Scientific Films, organized by the

Association Nationale des Médecins et des Cinéastes Scientifiques de France, in association with the *Gazette médicale de France*, will begin in November, 1961, at the Faculty of Medicine of Paris. Producers of 16 mm. medico-surgical or scientific films, not released in France, who wish to take part in this film festival, should submit their entries no later than September 5. The technical committee appointed to judge the films will meet on that date. All entries must be addressed as follows: Association Nationale des Médecins Cinéastes et des Cinéastes Scientifiques de France, 23, Boulevard de Latour-Maubourg, Paris, VII[e]. Overseas entrants would be well advised to send their films to the Cultural Attaché of their Embassy in Paris, in the care of their Minister for Foreign Affairs.

A New Journal of Human and Animal Mycology.

The International Society for Human and Animal Mycology has founded its own journal with the unusual name of *Sabouraudia*. This commemorates the French dermatologist, Raimond Sabouraud (1864-1938), who made notable contributions to knowledge in the field of mycology. The first number, dated January, 1961, is attractively produced and contains, in addition to original articles, obituaries, reviews of books and films and a few items of general interest. The publishers are E. & S. Livingstone Ltd. of Edinburgh, and the subscription price per volume (four issues) is £4 (sterling), post free.

"Hospital Abstracts."

Described as a monthly survey of world literature, *Hospital Abstracts* is a new publication prepared by the Ministry of Health in the United Kingdom. Its aim is, by means of abstracts from current literature, to cover the whole field of hospitals and their administration, with the exception of strictly medical and related professional matters. Copies of publications and reprints of articles for notice in this abstract journal are invited. It should be welcomed by all who are concerned with the control and administration of hospitals. The annual subscription is £3 4s. (sterling) including postage to any destination. The publisher is Her Majesty's Stationery Office.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, changes, etc., are published in the *Commonwealth of Australia Gazette*, No. 45, of May 25, 1961.

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps (Medical).

64011 Captain P. James is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Eastern Command), 13th April, 1961.

Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—125512 Captain P. W. Leslie is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Northern Command), 1st March, 1961.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—2148030 Lieutenant (Honorary Captain) M. J. Flynn is appointed from the Reserve of Officers and to be Captain (provisionally) (Temporary Lieutenant-Colonel), 27th February, 1961.

The Royal Tasmania Regiment.

Royal Australian Army Medical Corps (Medical).—615251 Major J. C. S. Officer is transferred from Royal Australian Army Medical Corps (Medical), Tasmania Command, with regimental seniority in accordance with Army seniority (2nd July, 1957), is appointed to command 10th Field Ambulance and to be temporary Lieutenant-Colonel, 1st July, 1960, in lieu of the notification respecting this officer, which appeared in Executive Minute No. 3 of 1961, promulgated in the Commonwealth of Australia Gazette, No. 8 of

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MAY 20, 1961.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	3(1)	1(1)	..	..	..	..	..	4
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	..	..	..	..	15	..	15
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	1	..	..	..	..	..	..	..	1
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	3(2)	5(4)	2(2)	..	1	..	9	..	20
Diphtheria	..	..	..	..	2(2)	..	..	..	2
Dysentery (Bacillary)	..	..	2(2)	2(2)	1	..	..	..	5
Encephalitis	..	..	..	2(1)	..	..	..	..	2
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	1	..	..	1
Infective Hepatitis	66(24)	65(21)	8(2)	12(5)	4(1)	1	1	3	160
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	3	..	..	..	..	..	..	3
Malaria	..	1	..	..	..	..	..	..	1
Meningococcal Infection	2(1)	..	..	..	..	..	..	..	2
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	2(2)	..	..	..	2
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	1(1)	1(1)	..	..	..	..	..	2
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	8(5)	..	1	1(1)	..	..	..	10
Salmonella Infection	..	..	..	..	..	..	1	..	1
Scarlet Fever	4(1)	24(10)	4(2)	..	..	1	..	..	33
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	1	2	..	..	..	..	..	3
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	29(18)	11(9)	7(2)	5(3)	8(8)	3(1)	1	..	64
Typhoid Fever	1(1)	..	..	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

1961. 615206 Captain D. J. Walters is transferred from Royal Australian Army Medical Corps (Medical), Tasmania Command, 1st July, 1960, with regimental seniority in accordance with Army seniority (9th March, 1957).

Central Command.

Royal Australian Army Medical Corps (Medical).—To be Captains (provisionally)—432251 John Peter Rice, 14th April, 1961, and 432252 Graham John Andersen, 18th April, 1961.

Western Command.

Royal Australian Army Medical Corps (Medical).—To be Captain (provisionally), 28th April, 1961.—F51293 Lorraine O'Brien.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

Southern Command.—The resignation of Major R. Motteram of his commission is accepted, 17th February, 1961.

The following appointments, changes, etc., are published in the *Commonwealth of Australia Gazette*, No. 48, of June 1, 1961.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Confirmation in Rank.—Surgeon Lieutenant (for Short Service) (on probation) James Stuart Cumming is confirmed in the rank of Surgeon Lieutenant (for Short Service), with seniority in rank of 20th April, 1960.

Confirmation in Rank.—Surgeon Lieutenant (for Short Service) (on probation) Ian Scott Macmillan is confirmed in the rank of Surgeon Lieutenant (for Short Service), with seniority in rank of 20th April, 1960.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Appointment.—David Alexander Noble is appointed Surgeon Lieutenant, with seniority in rank of 5th January, 1959, dated 5th January, 1961.

Promotion.—Surgeon Lieutenant Peter Francis Gill is promoted to the rank of Surgeon Lieutenant-Commander, dated 27th December, 1960.

Termination of Appointments.—The appointments of Anthony Sutherland Paton and Peter Hardy Smith as Surgeon Lieutenants are terminated, dated 23rd February, 1961, and 1st March, 1961, respectively.

Termination of Appointment.—The appointment of George Ronald Thoms as Surgeon Lieutenant is terminated, dated 7th March, 1961.

Notice.

BRITISH MEDICAL ASSOCIATION, VICTORIAN BRANCH.

Section of Preventive Medicine.

A MEETING of the Section of Preventive Medicine of the Victorian Branch of the British Medical Association will be held on July 13, 1961, at 4.30 p.m., at the Medical Society Hall, 426 Albert Street, East Melbourne. The topic for discussion is "Air Conditioning". Dr. A. Christophers will discuss medical aspects, and Mr. A. E. Tweddell, a consulting engineer, will discuss engineering features. All those interested are invited to attend.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Branch of the British Medical Association:

Mowbray, Patricia Diana, M.B., B.S., 1958 (Univ. Sydney), The Wollongong Hospital, Wollongong.

Deaths.

THE following deaths have been announced:

O'DAY.—Kevin John O'Day, on June 6, 1961, at Melbourne.

GUINEY.—Clarence Michael Guiney, on June 8, 1961, at Lewisham, N.S.W.

Diary for the Month.

JUNE 27.—New South Wales Branch, B.M.A.: Hospitals Committee.
JUNE 28.—Victorian Branch, B.M.A.: Branch Council Meeting.
JUNE 28.—South Australian Branch, B.M.A.: Annual Meeting.
JUNE 29.—New South Wales Branch, B.M.A.: Branch Meeting.
JULY 4.—New South Wales Branch, B.M.A.: Council Quarterly.
JULY 4.—Western Australian Branch, B.M.A.: General Meeting.
JULY 5.—Western Australian Branch, B.M.A.: Branch Council.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): Medical Officers to Sydney City Council. All contract practice appointments in New South Wales. Members are requested to consult the Medical Secretary before undertaking practice in dwellings owned by the Housing Commission.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

Authors of papers are asked to state for inclusion in the title their principal qualifications as well as their relevant appointment and/or the unit, hospital or department from which the paper comes.

References to articles and books should be carefully checked. In a reference to an article in a journal the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of article. In a reference to a book the following information should be given: surname of author, initials of author, year of publication, full title of book, publisher, place of publication, page number (where relevant). The abbreviations used for the titles of journals are those of the list known as "World Medical Periodicals" (published by the World Medical Association). If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full data in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: 68-2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in Australia can become subscribers to the Journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £6 *per annum* within Australia and the British Commonwealth of Nations, and £7 10s. *per annum* within America and foreign countries, payable in advance.

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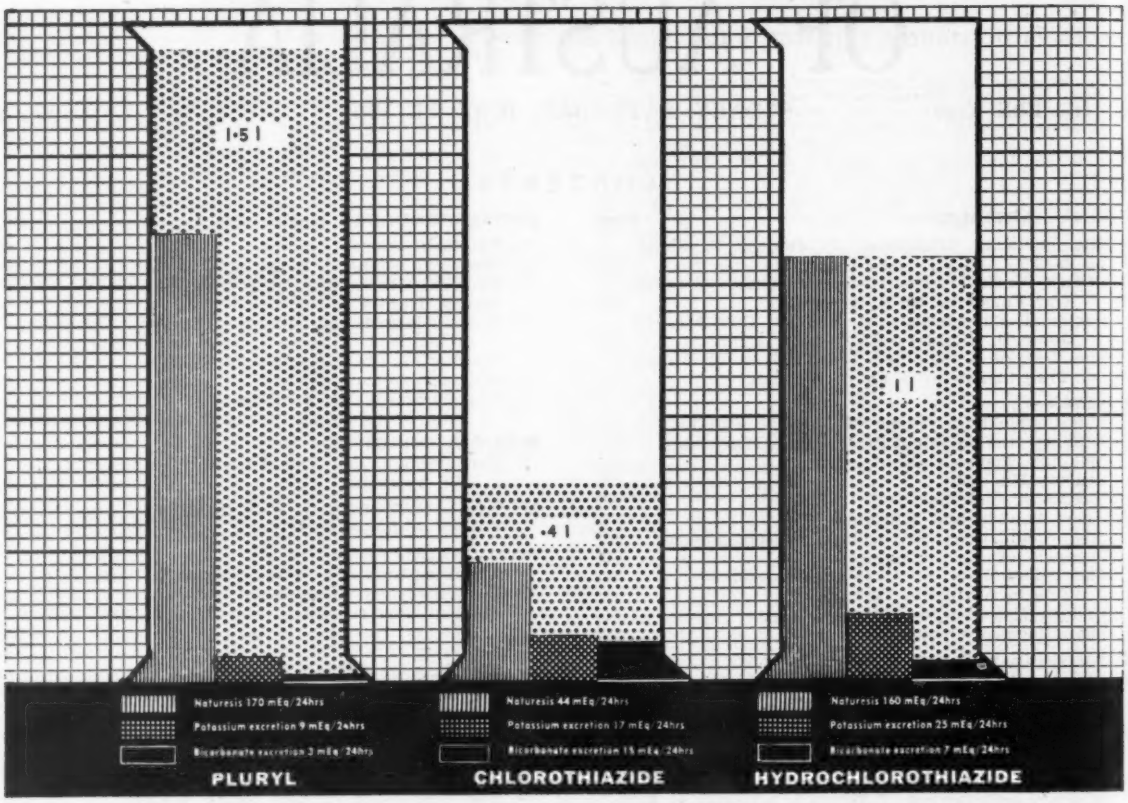

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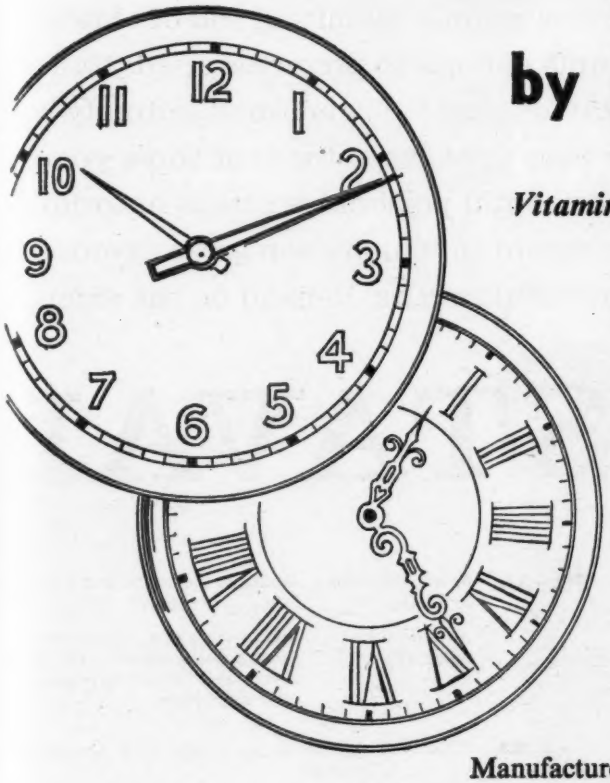

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'DISTAVAL'

TRADE MARK

DOSAGE

As a night-time hypnotic	*Adults: 50 mg. to 200 mg. at bedtime. Infants and children: 25 mg. to 100 mg.*
As a daytime sedative	*Adults: 25 mg. two or three times daily. Infants and children: Half to one 25 mg. tablet, according to age, one to three times daily.*

PACKS **'Distaval'** tablets 25 mg. Tubes of 24; bottles of 100 and 500.
'Distaval' Forte tablets of 100 mg. Tubes of 12; bottles of 100 and 500.

REFERENCES
Practitioner, 1959, 183, *57.*
J. clin. exp. Psychopath., 1959, 20, *243.*
J. Coll. gen. Pract., 1958, 1, *398.*
Brit. med. J., 1959, 2, *635.*
Med. Wld. (Lond.), 1960, 93, *26.*
Brit. J. Pharmacol., 1960, 15, *111.*

DC(B)L **THE DISTILLERS COMPANY BIOCHEMICALS (AUSTRALIA PTY.) LIMITED**
P.O. Box 41, Campbell Street, Artarmon, N.S.W.

Studio photograph

LIFE

Now gaining wide acceptance in AUSTRALIAN HOSPITALS

VASOGEN SILICONE

for TREATMENT and PREVENTION of BED SORES

After having been used with great success in hospitals throughout the United Kingdom, Vasogen Silicone is proving equally effective and popular in Australian hospitals both from nursing and patient angles.

Clinical Aspects

Vasogen Silicone after long clinical trial has proved its superiority over other methods as a preventative of, and a treatment for, bed sores.

- Prevents breakdown of tissues at pressure points.
- Quickly heals skin when already broken.
- Has been found particularly suitable for incontinent and geriatric patients.
- Is used successfully in after handling of coleostomy, ileostomy, caecostomy and disseminated sclerosis, etc.

Vasogen Silicone is an oil-in-water emulsion presenting 20% *Polydimethyl-siloxane:* 7½% *Zinc Oxide B.P.:* 1½% *Calamine B.P.*

Nursing Made Easier

Vasogen Silicone simplifies and eases the burden on nurses in one of their most time-consuming tasks. Nurses especially appreciate the use of Vasogen Silicone because:

- It is bland, odorless, non-greasy and non-staining.
- Is tinted to match the skin.
- Keeps nurses' hands soft and supple and protected from liquid irritants.
- Does not soil bed linen.
- On a basis of 40 patients, time saved equals entire services of one nurse.

VASOGEN SILICONE

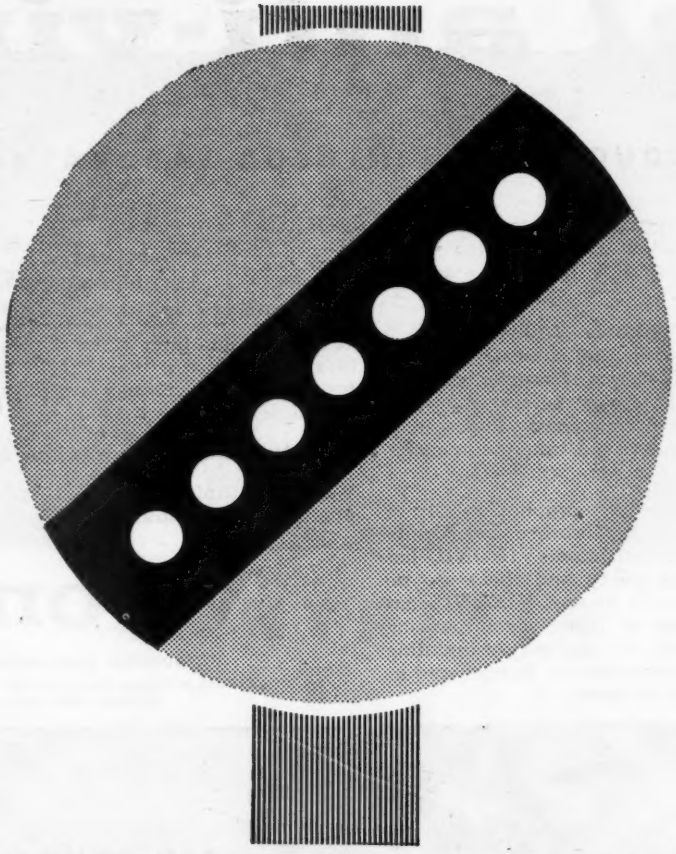
A PRODUCT OF LACTAGOL LIMITED
London, England

Australian Distributors:

SALMOND & SPRAGGON (AUST.) PTY. LTD.
104-108 Mount Street, North Sydney.
Also at Melbourne, Adelaide, Brisbane, Perth.

VS-247

'RELEASE'



ESKORNADE SPANSULE

sustained-release capsules

long-acting oral nasal decongestant

One dose of 'Eskornade' produces immediate relief of nasal congestion, followed by an evenly maintained effect over the next 10-12 hours. The three components of 'Eskornade' provide a balanced, *comprehensive* therapeutic action, counteracting nasal vasodilatation, hypersecretion and oedema safely, effectively, and with few and minor side effects.

Formula: Each 'Eskornade Spansule' sustained-release capsule contains: Phenylpropanolamine hydrochloride, 50 mg. Isopropamide iodide, 2.5 mg. Diphenylpyraline hydrochloride ('Histryl'), 5 mg.

SMITH KLINE & FRENCH LABORATORIES (AUSTRALIA) LTD
(Incorporated in England)
Corner Denison & Spring Streets, N. Sydney, NSW

'Eskornade', 'Spansule' and 'Histryl' are trade marks Aust. Pat. Nos. 164298, 208195 SED:PA161A

FIRST oral anti-viral AGENT

INTRODUCED BY WINTHROP LABORATORIES

Ten years' clinical investigation of the new biguanide alkaloid combination has culminated in the development and release of VIRONIL — an oral anti-viral synthetic.

VIRONIL [N^1N^1-anhydrobis (β-hydroxyethyl) biguanide hydrochloride], in clinical trials in Britain, Sweden and America, has been claimed to have a pronounced activity against the virus organisms responsible for influenza (Types A, B and Asian), the common cold, mumps, measles, chickenpox and herpes zoster.

VIRONIL can be given either prophylactically or therapeutically. It is readily absorbed and rapidly excreted after oral administration. VIRONIL has a very high margin of safety and there are no known contraindications to its use. VIRONIL has no antipyretic, analgesic or blood sugar lowering effects; no spasmolytic or centrally-stimulating action, or anti-histamine properties. It is offered as an effective, oral anti-viral agent.

DOSAGE:

	Prophylactic	Therapeutic
Adults:	1 tablet 3 times a day	2 tablets 3 times a day
Children:	½ tablet 3 times a day	½-1 tablet 3 times a day

It is important, both in the prevention and treatment of viral infections, that VIRONIL should be given for 8 days even though a rapid clinical response is obtained.

VIRONIL is supplied in bottles of 48 tablets.

Write for Professional Literature giving details of pharmacology, clinical background and references.

Vironil

WINTHROP LABORATORIES
Division of Sterling Pharmaceuticals Pty. Limited
SYDNEY, AUSTRALIA

THE COLD VIRUS SEEN BY ELECTRON MICROSCOPE. DRAWN FROM PHOTOGRAPH MAGNIFIED 520,000 TIMES 60.5.61

'GANTRISIN'
TRADE MARK ROCHE

PEDIATRIC TABLETS

For upper respiratory infections in children . . . pleasantly flavoured . . . wide antibacterial spectrum . . . no danger of secondary fungus infections.

GENERAL BENEFITS N.H.S. ITEM NO. 790

Packings of 40 and 500

ROCHE PRODUCTS PTY. LIMITED — SYDNEY

NEW MODERN FORMULATION

'PENTA-VITE' TRADE MARK Syrup

for toddlers, older children and adults

SPECIALLY FORMULATED . . . WITH

Extra Vitamin C
as a prophylaxis against infantile scurvy

Significant dose of iron
key factor in the formation of red blood cells

Adjusted Vitamin D
in accord with latest recommendations.

Formulated to promote normal sturdy growth and to assist in the maintenance of good health. 'PENTA-VITE' Syrup is valuable as a tonic after sickness and for difficult feeders.
Pleasant tasting, easy to measure, easily given straight from the spoon.

Formula: *Each teaspoonful contains:*

Vitamin A	4,000 i.u.	Niacinamide	15.0 mg.
Vitamin B_1	2.5 mg.	Vitamin C	60.0 mg.
Vitamin B_2 (phos)	2.5 mg.	Vitamin D*	200 i.u.
Vitamin B_6	0.75 mg.	Iron	3.6 mg.
Sod. pantothenate	4.0 mg.		

**Vitamin D content at reduced level in accord with current recommendations on requirements in Australia. Lower dosage provides means of balancing overall intake.*

Daily Dosage:
Infants: Half teaspoonful
Children, according to age: Half to 1 teaspoonful
Adults: 1 teaspoonful

Packing: 75 c.c.
Consumer price 9/- (and dispensing fee if on prescription).

A Nicholas N *Product*

NICHOLAS PROPRIETARY LIMITED
Owned in Australia — selling to the world
699 Warrigal Road, Chadstone, Victoria.
SYDNEY BRISBANE ADELAIDE PERTH HOBART

E2361/1406

as modern as the jet

CEMALONAL

BRAND OF SUPERIOR PASTEL COLOURED PHENOBARBITONE TABLETS

a separate shade for each strength.

DOSAGE	COLOUR	PACKAGES
Grain ¼ (16 mg.) Grain ½ (32 mg.) Grain 1 (65 mg.) Grain 1½ (97 mg.)	APRICOT EAU DE NIL LAVENDER PINK	Bottles of 100 and 500 and tins of 5,000 tablets obtainable through all leading pharmacies.

"PARENTOSOL" CEMALONAL
For Intramuscular Injection

Each c.c. contains 3 grs. Sodium Phenobarbitone B.P., with 2% Benzyl Alcohol as a local anaesthetic, in an organic solvent. **Packages:** Boxes of 6 x 1 c.c., 25 x 1 c.c. and 100 x 1 c.c.

Charles McDonald
Mead Johnson

Symbol of service in medicine

CARINGBAH · NEW SOUTH WALES.

"PARENTOSOL" CEMALONAL is available under N.H.S.

Cemalonal costs your patients little more than ordinary phenobarbitone tablets

MAKERS OF PHARMACEUTICAL SPECIALTIES

THYAL

THYAL

A solution of a bacteriostatic agent (mercurithio-salicylate), 1/4 gr. per fluid ounce in a volatile ether-alcohol base.

for ACNE VULGARIS

Sebum, in the duct orifices, impregnated with Thyal, remains bacteriostatic and bactericidal for days—owing to Thyal's persistent activity. With regular use reinfection is prevented, and as this is the main reason for the persistence of acne, the condition is often abolished.

Thyal is not intended for other types of acne not characterized by follicular plugging.

(D.H.A.)

Method of Using THYAL

Apply Thyal morning and night. Well saturated cotton wool swabs are used and any area where there is a discharge of free pus must be cleaned first and the swab discarded immediately. Pustules with yellow heads may be opened with a sterile needle, but only light pressure must be applied to express the pus. Pustules so opened do not leave visible scars, while those which are unopened often do.

Severe cases respond within three months, improvement being seen within a few weeks. Mild cases respond quickly and should be cured within one month. All factors tending to produce a hypersecretion of sebum should be investigated and controlled, as it is important to retain the sebaceous plug which is impregnated with the bactericidal agent. Treatment should be continued for at least one month after the acne is cured.

Instruction slips are available in pads, perforated so that the product name does not appear. Pads are obtainable through D.H.A. representatives or State offices.

PRECAUTION! As with all mercurial preparations, there is the possibility of irritation or even dermatitis, especially in certain individuals. Should irritation occur, the use of Thyal should be discontinued.

Available in bottles of 4 fluid ounces.

SAPODERM

SAPODERM

SOAP *(D.H.A.)*

(Hexachlorophene 2%) in large 5-oz. cakes

An adjuvant in acne, dandruff and in all skin infections

Hexachlorophene is bacteriostatic and bactericidal to S. aureus, Strep. viridans and various Gram-positive cocci.[1]

A three-minute scrub is as effective as ten minutes with plain soap.[2]

240 patch tests—all negative.[1]

[1] Traub, E. F., Newhall, C. A., Fuller, J. R., "Surg., Gynec. & Obst.", 1944, LXXIX, 205.

[2] Dull, J. A., Tintel, H. A., Ellis, J. L., and Nicholls, A., "Surg., Gynec. & Obst.", 1950, LX.

Distributed throughout Australia by all D.H.A. Houses

ADULT NASAL
SOLUTION 0.1%
10 c.c. bottle with dropper

EFFECTIVE . . .
Tyzine is tetrahydrozoline hydrochloride, a sympathomimetic amine with potent decongestant properties.

PROMPT AND PROLONGED ACTION . . .
Relief is almost immediate and lasts up to six hours or longer after a single administration.

Pfizer

Tyzine*

TETRAHYDROZOLINE HCl

NASAL DECONGESTANT

NO REBOUND CONGESTION, BURNING OR STINGING . . .
Virtually free of sting or burn and rebound congestion . . . odourless, tasteless and without irritation.

IMPORTANT:
Use Tyzine Paediatric Nasal Drops (0.05%) for children under 6 years. The 0.1% concentration is contraindicated in this age group.

PAEDIATRIC NASAL
DROPS 0.05%
10 c.c. bottle with dropper

AUS.P.J.A.I.3/45/61.

Modern 3-Way treatment for the COMMON COLD!

Mistol
COLD TABLETS

Containing Hesperidin and Pyrilamine Maleate

① RELIEVE PAIN—Two highly effective pain relieving agents in Acetophenetidin and Salicylamide assist in easing headaches, muscular and other aches and pains, and in reducing fever, while Caffeine also helps through its stimulating properties.

② REDUCE NASAL SECRETIONS—Pyrilamine Maleate (an antihistamine) helps to reduce nasal secretions, to check sneezing and stuffiness and other annoying symptoms.

③ HELP RESIST AFTER EFFECTS—Ascorbic Acid (vitamin C) and Citrus Bioflavonoids (hesperidin) aid in offsetting the increased rate of vitamin C destruction, in maintaining vitality and in resisting after effects.

Packed in plastic vials of 18 tablets.

A product of Plough Inc., Memphis, Tenn., U.S.A.

Australian Representatives:

POTTER & BIRKS PTY. LTD.

6–8 McLACHLAN AVENUE, ARTARMON, N.S.W.

Regulates intestinal function by inducing normal reflex peristalsis

Durolax®

(4,4'-diacetoxy-diphenyl)-(pyridyl-2)-methane

The contact laxative

Indications

For the use in all forms of constipation. It may be used without risk during pregnancy and in illness.

To obtain a thorough evacuation of the colon prior to x-ray examination. The suppository provides an effective replacement for the cleansing enema, e. g. pre- and postoperatively, preparation for barium enema, preparation of colon for proctosigmoidoscopy.

Available

Boxes of 30 and 200 enteric coated tablets

Boxes of 6 and 50 suppositories

INGELHEIM

C. H. BOEHRINGER SOHN · INGELHEIM AM RHEIN · GERMANY

Sole Representative for Australia: F. H. FAULDING & CO. LTD.

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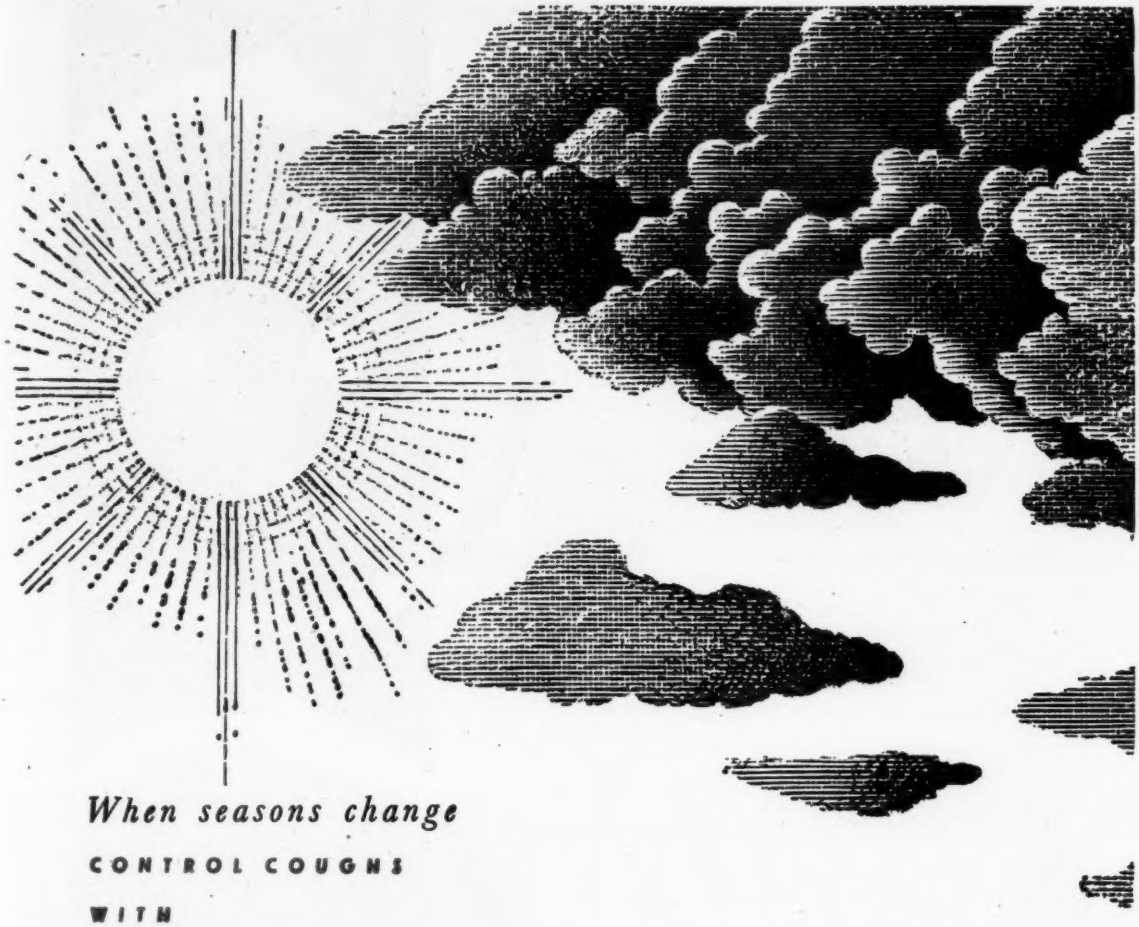

When seasons change

CONTROL COUGHS

WITH

'PHENSEDYL'

trade mark brand

PROMETHAZINE

COUGH LINCTUS

'Phensedyl' brand promethazine cough linctus is indicated for the relief of post-influenzal cough, or where there is bronchospasm. It is also valuable in asthmatic cough, the cough of bronchitis and the spasm of whooping-cough.

Detailed information is available on request

SUPPLIES

Containers of 4 fl. oz. and 40 fl. oz. Each 3·6 ml. (approx. one teaspoonful) contains: Promethazine Hydrochloride B.P. 3·6 mg., Codeine Phosphate B.P. 9 mg., Ephedrine Hydrochloride B.P. 7·2 mg.

MANUFACTURED BY

MAY & BAKER LTD

An M&B brand Medical Product MA 7360

DISTRIBUTORS: MAY & BAKER (AUSTRALIA) PTY LTD INC. IN N.S.W · P.O. BOX 41 · FOOTSCRAY W.11 · VICTORIA
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BONADORM

hypnotic and sedative

is safe...

. . . for children

Unlike many powerful hypnotics, **Bonadorm** does not provoke restlessness and hyper-excitability in children. It has a mild analgesic effect that helps to put a child to sleep even when there is mild pain, especially during teething. It is available as paediatric tablets (2½ grains).

. . . for the anxious patient

Tranquilisers are not necessarily indicated for the tense, anxious patient, who often needs more than a reliable daytime sedative. **Bonadorm** for instance, does not build up dependence or cause drowsiness during the day. As a hypnotic, too, it is safer than barbiturates, and leaves no hangover.

BONADORM

SAFE SEDATIVE & HYPNOTIC

Bonadorm (dichloralphenazone) is as safe as chloral, from which it is chemically derived. Unlike chloral, **Bonadorm** can be taken with little risk of intolerance — in tablet form.

S&N

SMITH & NEPHEW PHARMACEUTICALS LTD.
WELWYN GARDEN CITY, Hertfordshire, England. Distributed in Australia by:
EVANS MEDICAL AUSTRALIA (PTY.) LTD.
Sydney and Melbourne

AMJ 3084(3)

MAY 1ST 1961!

NOW AVAILABLE AS

N.H.S. BENEFITS

RAUDIXIN

Squibb Whole Root Rauwolfia Serpentina
N.H.S. ITEM 747
Maximum quantity: 50mg. tablets 100's

KENACORT

Squibb Triamcinolone
N.H.S. ITEM 887
Maximum quantity: 4mg. tablets 30's

VELACYCLINE

Squibb Pyrrolidinomethyl Tetracycline
N.H.S. ITEM 661
Maximum quantity: 150mg. and 350mg. amps. 5's

"RAUDIXIN", "KENACORT", AND "VELACYCLINE" ARE SQUIBB TRADEMARKS.

SQUIBB

Don't let sickness overshadow pregnancy

...prescribe

'ANCOLOXIN'

TRADE MARK

Tubes of 10 tablets
Bottles of 50 tablets

Although many women today realise that occasional morning sickness is a normal, though unpleasant part of pregnancy, they will turn to you for advice and help in these vital early months. Reassure your patient. Prescribe ANCOLOXIN, which is now well established as a real comfort to expectant mothers, in controlling pregnancy sickness.
Each tablet presents meclozine hydrochloride 25 mg., plus pyridoxine hydrochloride (vitamin B_6) 50 mg.
Meclozine hydrochloride is given for central control of the vomiting, and pyridoxine hydrochloride for basic metabolic restoration.

DOSAGE: 2 tablets at night until the condition is under control.

BDH

THE BRITISH DRUG HOUSES (AUSTRALIA PTY.) LIMITED
250 Pitt Street, Sydney

BDH87/FP

Mornidine

An entirely new and effective drug for the specific treatment of nausea and vomiting of pregnancy

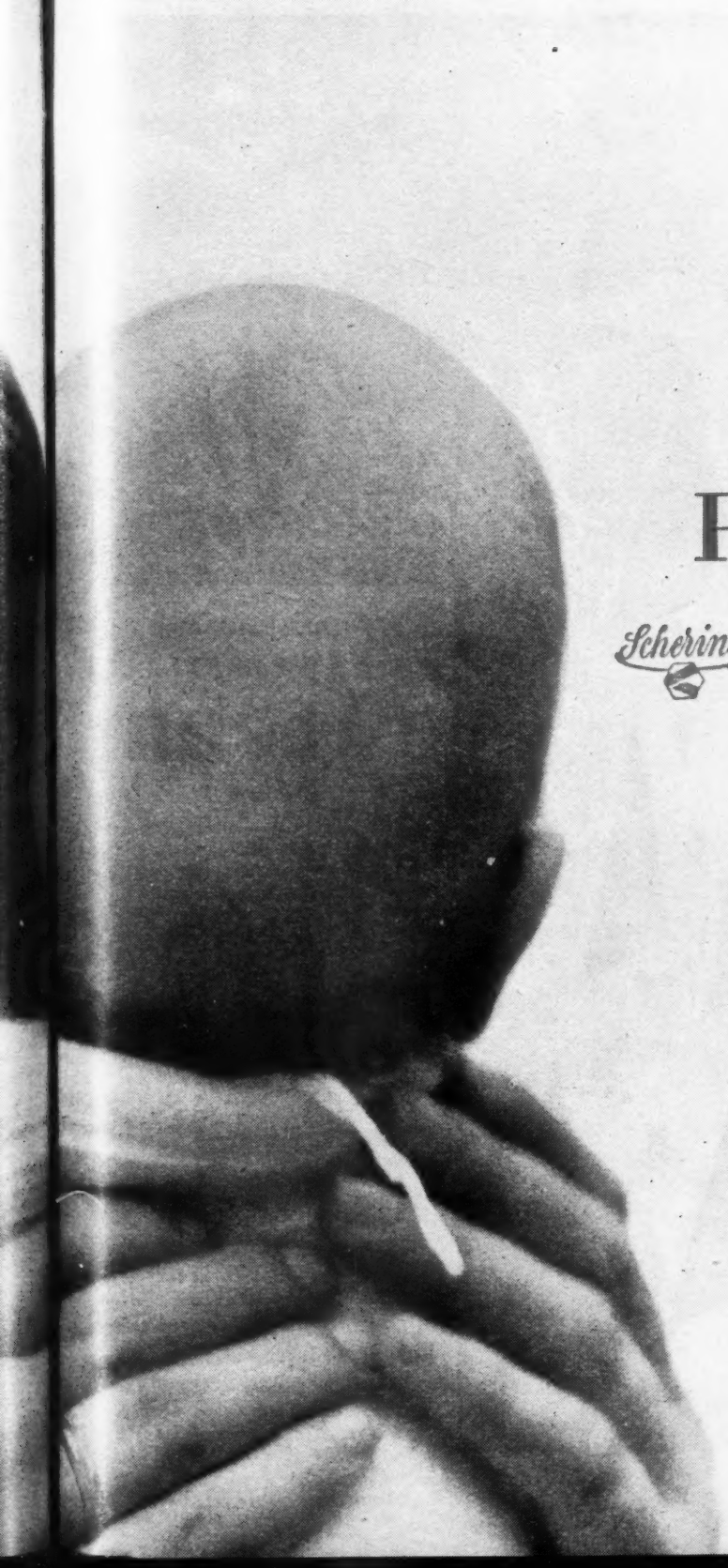
Mornidine for morning sickness

Mornidine is a new phenothiazine in which a useful separation of activities has been achieved. Even at maximum therapeutic dosage levels Mornidine does not have the specific tranquillising action of previous phenothiazine drugs and is therefore not liable to produce the characteristic side effects associated with this type of activity.

Mornidine (brand of Pipamazine) is available as a sugar-coated tablet containing 5 mg.

Distributed by D.H.A. Drug Houses throughout Australia.

G. D. SEARLE & CO. LTD., HIGH WYCOMBE, ENGLAND.



an additional baby saved by PROLUTON DEPOT

Schering

Out of 82 habitual aborters with a foetal salvage rate of only 11.3% following 344 pregnancies more than 68% were delivered successfully under PROLUTON DEPOT therapy.

(REIFENSTEIN, E. C.: Ann. New York Academy of Science 71, 5:762.)

PROLUTON DEPOT (Hydroxyprogesterone capronate) the only injectable progestational product sufficiently concentrated to make possible treatment with high dosage.

DOSAGE: 250 mg. intramuscularly at weekly intervals during the first half of pregnancy.

PACKING: 3 x 125 mg. available N.H.S. Restriction D.

SCHERING A. G. BERLIN

Distributors:
SCHERING PTY. LTD., Box 3576, G.P.O., Sydney.

ANALGESIC AND ANTIPYRETIC

CALPON

TABLETS

★ An exceptionally well-balanced and quick-acting analgesic

★ Rapid disintegration (15-20 secs.)

★ Phenolphthalein content counteracts the constipating effect of codeine

★ Caffeine offsets the depressing effects of codeine.

FORMULA:

Acetylsal, Acid B.P.	200 mg.
Phenaset, B.P.	250 mg.
Caffeine, B.P.	10 mg.
Codeine Phosph., B.P.	5 mg.
Phenolphthal, B.P.	5 mg.

Each tablet 8 grains

PRESENTATION:

Tablets (coloured yellow), in packs of 12, 50 and 500.

CALMIC

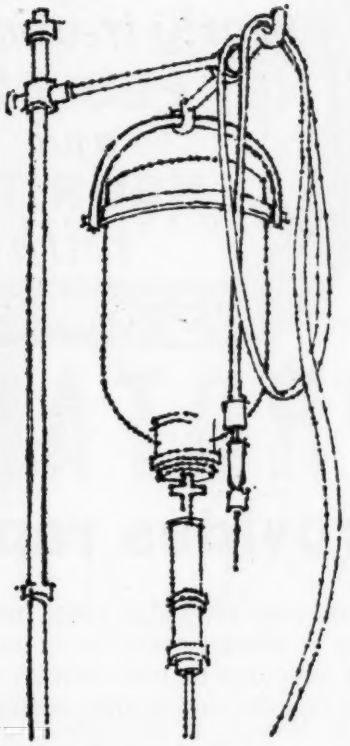
purely British Pharmaceuticals

CALMIC LIMITED, Crewe Cheshire.

Australian Branch:

Bibby Street, Chiswick, Sydney, N.S.W. Telephone 83 6178

Lilly



ILOTYCIN® GLUCOHEPTONATE, I.V.

(erythromycin glucoheptonate, Lilly)

may be lifesaving in staphylococcus septicemia. Ilotycin Glucoheptonate, I.V., is particularly useful for initiating treatment in your very ill patient when oral therapy is not practical. Dosage ranges from 1 to 4 Gm. daily and is best administered in divided doses or by continuous infusion over a twenty-four-hour period.

Supplied in 20-cc. ampoules containing 250 mg. of Ilotycin® (erythromycin, Lilly) base.

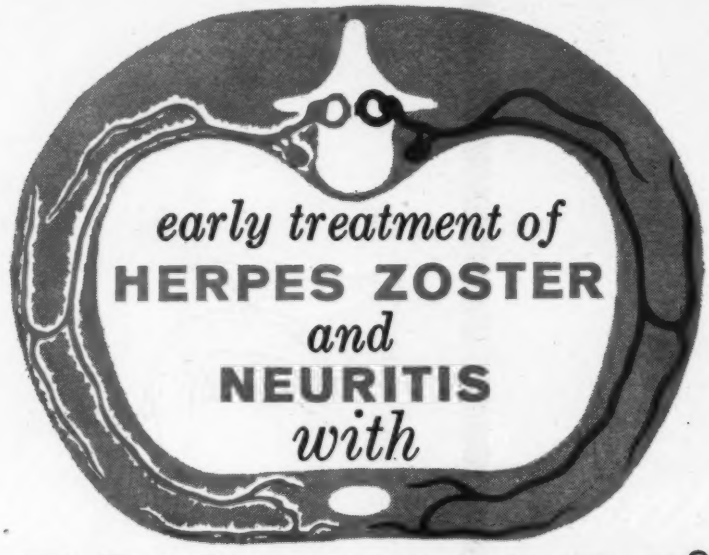
N.H.S. BENEFIT ITEM 308

250 mg. 20 c.c. I.V. ampoule

when infection threatens to overwhelm

Eli Lilly (Australia) Pty. Limited
West Ryde, New South Wales

EL56/FP



PROTAMIDE®

provides rapid relief

Relief of inflammatory radicular pain, including herpes zoster, is prompt when Protamide is administered early in the course of the disease. More important, recovery usually follows in three to six days, with prompt response even in ophthalmic herpes zoster.

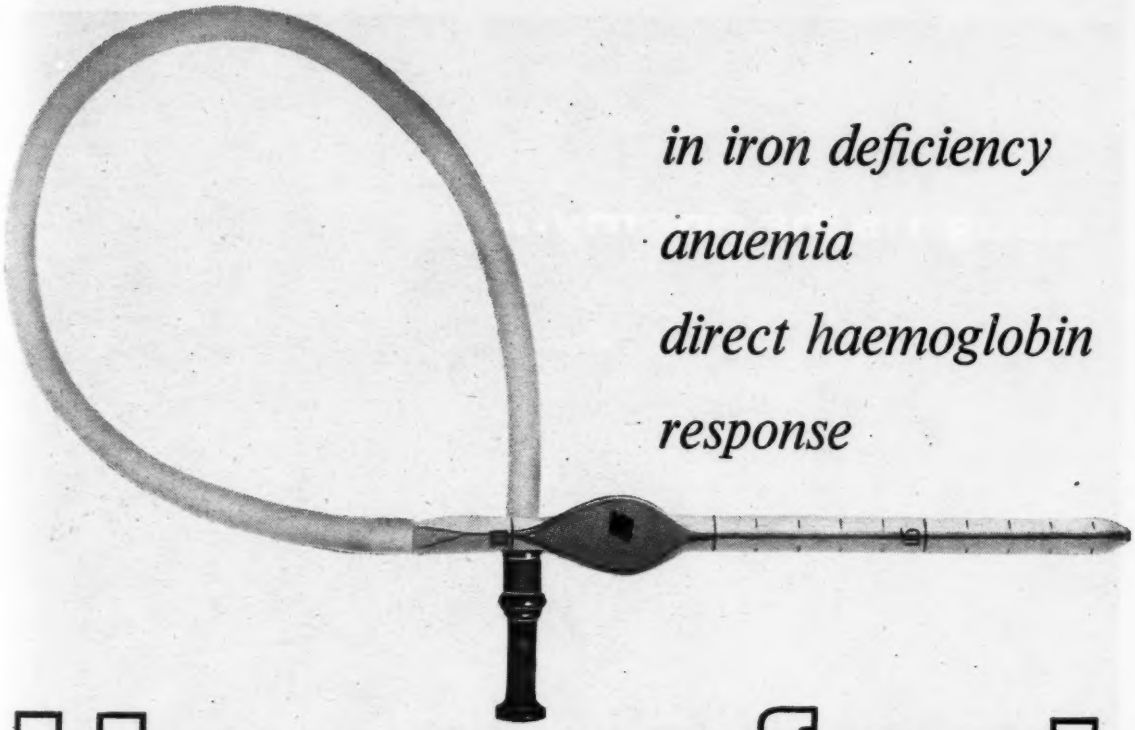
Published studies suggest that Protamide acts as a direct suppressant of neuritis due to acute inflammation of the nerve root. In such disorders, the response to early treatment with Protamide is sufficient to be diagnostic in inflammatory neuritis.

Protamide—an exclusive denatured colloidal enzyme preparation, virtually safe and painless—*not* foreign protein therapy. One ampoule I.M. daily for 2 to 5 days usually relieves pain completely in patients treated early.

SUPPLIED: boxes of 10 ampoules (1.3 cc.).

Sherman Laboratories
Detroit 11, Michigan

Sole Australian Distributors for SHERMAN LABORATORIES
F. H. FAULDING & CO. LTD.
ADELAIDE PERTH SYDNEY MELBOURNE BRISBANE



in iron deficiency anaemia direct haemoglobin response

Haemofort

TABLETS

● *provides iron in the most effective form* ● *supplies iron and iron alone* ● *enteric sealed to minimise gastric irritation* ● *inexpensive to use*

INDICATIONS

- Anaemias of pregnancy and post-partum anaemias
- Chronic microcytic and hypochromic anaemias
- Anaemias of nutritional origin
- General debility following infectious diseases
- Conditions due to mild deficiencies of Vitamin B group factors

COMPOSITION — Each enteric sealed tablet contains:—

Ferrous Sulphate Exsicc *(Ferrous Iron 97.0 mg.)*	5 Grains (300 mg.)
Vitamin B1	0.3 mg.
Riboflavin	0.3 mg.
Niacine Amide	1.0 mg.
Copper	0.6 mg.
Manganese	0.6 mg.
Cobalt	a trace.

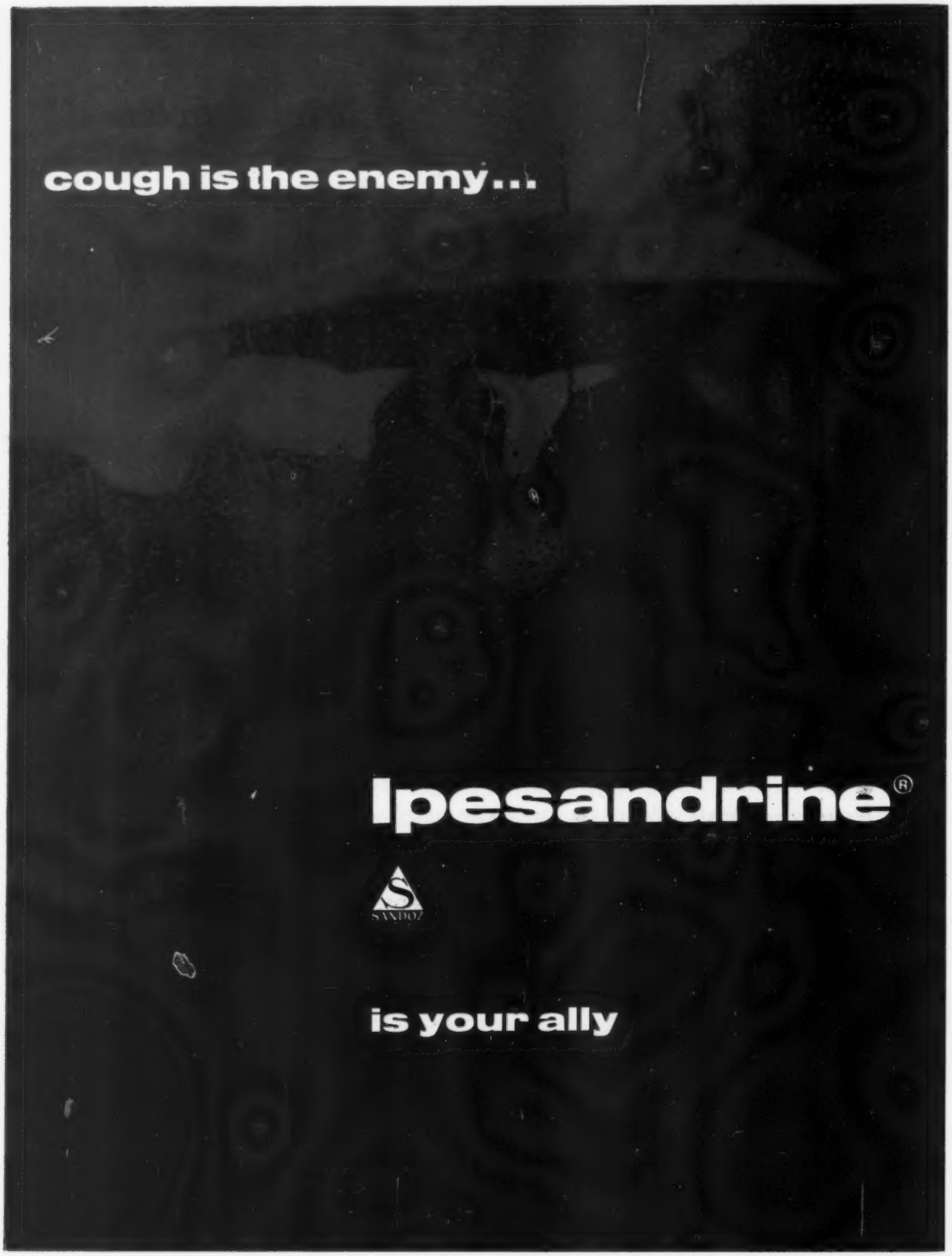
Haemofort is available as a pharmaceutical benefit.

Charles McDonald
Mead Johnson

Symbol of service in medicine

CARINGBAH · NEW SOUTH WALES.

CMMJ10.61


cough is the enemy...
Ipesandrine®
SANDOZ
is your ally

For your dermatologic armamentarium!

CREMOQUIN

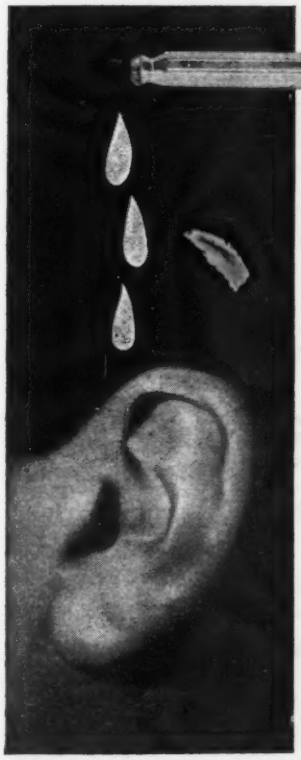
A hydrophilic cream base containing chloro-iodo-hydroxy-quinoline.

Most useful for local application in COCCOGENIC SYCOSIS BARBAE, SEBORRHEIC, DERMATITIS, OTITIS EXTERNA, ECZEMA, IMPETIGO

Sample & Literature on request

HAMILTON LABORATORIES LTD.

ADELAIDE



NEW ADJUSTED FORMULA

FOR THE EASY REMOVAL OF EAR WAX

Since some sensitive people occasionally complain of a mild smarting in the ear when Cerumol is used, a slight adjustment has been made to the formula and base.

The efficiency of the product is unchanged but the possibility of producing any unpleasant sensation has been eliminated.

CERUMOL

If you would like to test this slightly adjusted formula, samples are available on request.
Manufactured by: **Laboratories for Applied Biology Ltd., London.**
Australian Distributors: **Salmond & Spraggon (Aust.) Pty. Ltd.**, Box 111, P.O., North Sydney, N.S.W.
Also at: Melbourne, Brisbane, Adelaide, Perth.

Packs: For surgery use—10 cc. vial (with separate dropper). For hospital use—2 oz.
The formula of Cerumol is now as follows: Active constituents per 100 ml.—
P-DICHLOROBENZENE BP—2 G.
BENZOCAINE BP .... 2.7 G.
CHLORBUTOL BP .... 5.0 G.
OL. TEREBINTH BP .. 10 ML.

SC.4931.HP

Of eighty-six general practitioners recently interviewed in four areas of England, four out of every five were using 'Stelazine' for controlling mild mental and emotional disorders. Out of 344 patients treated, 295 responded satisfactorily.

Most patients were maintained on 2-4 mg. daily, at which dosage few side effects were reported and in only one case was 'Stelazine' discontinued.

'Stelazine' 1 mg. tablets are available in bottles of 25, 50, 250 and 500.

Now available under National Health (Pharmaceutical Benefits) Regulations

STELAZINE

SAFE AND VERSATILE IN GENERAL PRACTICE

Smith Kline & French Laboratories (Australia) Ltd
(Incorporated in England)

Corner Denison & Spring Streets, N. Sydney, NSW

'Stelazine' (brand of trifluoperazine) is a trade mark

SZL: PA291A

A MAJOR ADVANCE IN THE CONTROL OF HAEMORRHAGE

SURGICEL®

—for the control of obstinate haemorrhage in surgery!

CLINICAL ADVANTAGES

chemical and biological uniformity assures dependable performance—

inherently haemostatic—effective in various blood dyscrasiae, including haemophilia—

does not fragment and may easily be sutured in place if necessary—

readily adheres to oozing-weeping surfaces but not to gloves or instruments—

conforms readily to irregular organ contours—

prompt and complete absorption with minimal tissue reaction—

effective on epithelialising surfaces and surface wounds with loss of substance—

no instance of untoward reaction observed in hundreds of cases—

HOW SUPPLIED: **SURGICEL** is supplied sterile in the following forms:

SURGICEL Absorbable Haemostat Knitted Fabric Strips—2" x 14", Knitted Fabric Strips—4" x 8", Knitted Fabric Strips—2" x 3".
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CONTRAINDICATIONS: No contraindications have been found, however only the minimal amounts of material required should be used.

Detailed information upon request.

HOSPITAL DIVISION

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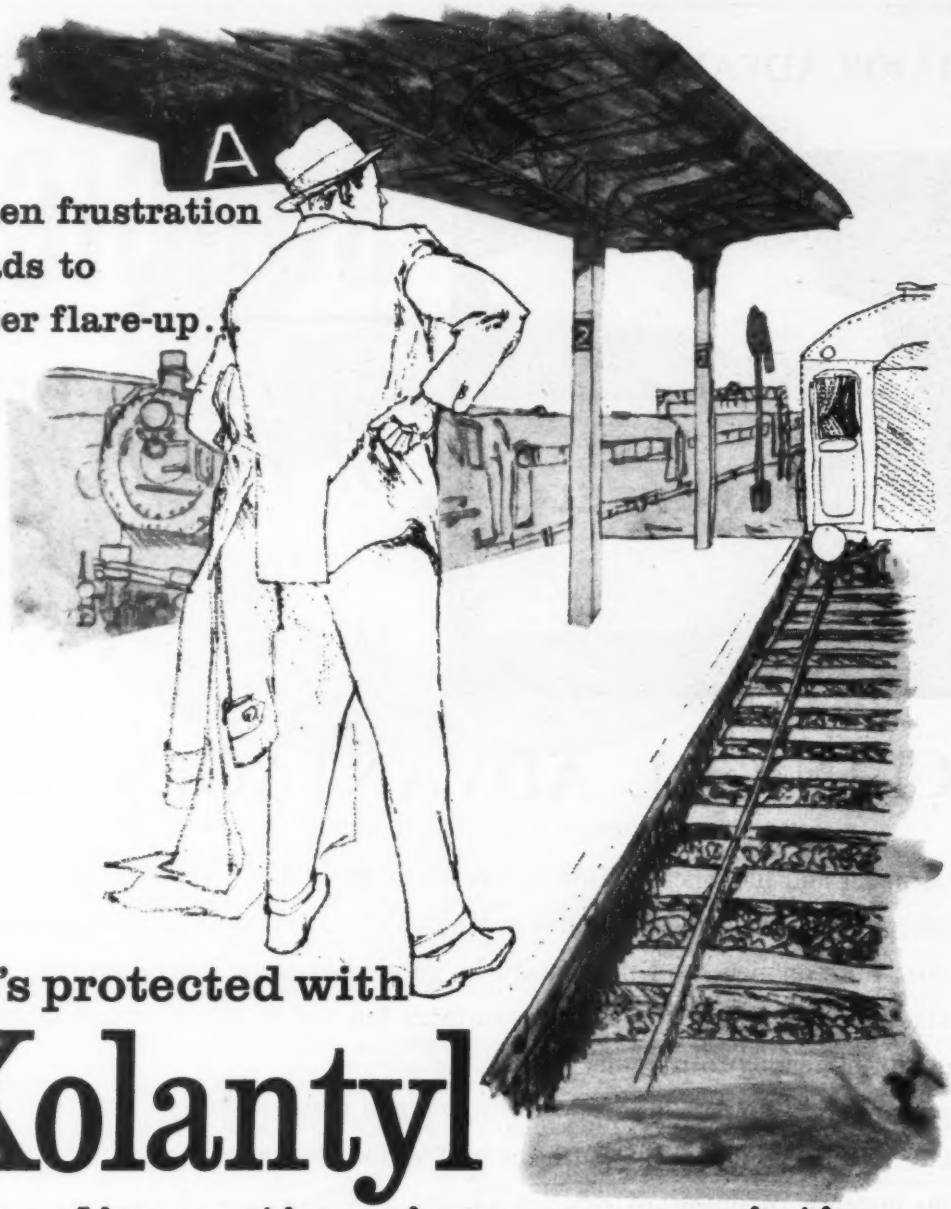

when frustration
leads to
ulcer flare-up...

he's protected with

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4 healing actions in one prescription

- *Selective antispasmodic action:* Merbentyl
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- *Protective-coating action:* methylcellulose
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peptic ulcer or ulcer-prone... there's more in Kolantyl
more relief, more protection, more comprehensive treatment

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Pharmaceutical Specialties of Original Research

TRADEMARKS: KOLANTYL, MERBENTYL

NEW "KRYL"

latest advance in treatment of Sinus and Nasal Congestion

"KRYL" provides rapid relief from the congestion as well as associated headache, fever, aches and pains of colds and allergic rhinitis—without depression—without stimulation.

ANTIHISTAMINE ACTION WITHOUT SEDATION

Isothipendyl HCl.—Newest type of antihistamine for control of excessive nasal secretion and congestion. Highly potent (92 per cent effective)[1] yet unusually free from side effects — less than one per cent incidence of drowsiness.[1-3]

SYSTEMIC DECONGESTION WITHOUT SIDE EFFECTS

1-Phenylephrine — Unusually long-acting oral vasoconstrictor[4] relieves nasal blockage, promotes better drainage, without local pathologic changes reported with topical agents. Relieves bronchial spasm.

ANALGESIC–ANTIPYRETIC ACTION WITHOUT DRUG STIMULATION

Aspirin and Phenacetin — Analgesic-antipyretic synergists, to relieve fever, aches and pains. Freedom from antihistamine drowsiness obviates need for drug stimulants.

ANTI–STRESS VITAMIN TO MAINTAIN TISSUE INTEGRITY

Ascorbic Acid — High levels of vitamin C aid in preventing nasal edema due to impaired vascular and mucous membrane integrity,[5] and replenish adrenal ascorbic acid reserves.[6]

NEW "KRYL"

for symptomatic relief of colds, hay fever, and sinus congestion.

Each tablet contains:

Isothipendyl HCl	**4 mg.**
Aspirin	**230 mg.**
Phenacetin	**160 mg.**
1-Phenylephrine HCl	**5 mg.**
Ascorbic Acid	**100 mg.**

REFERENCES: [1] New and Unused Therapeutics Committee, Am. Coll. Allergists: Ann. Allergy, 16: 237 (May-June), 1958. [2] Spielman, A. D.: Ann. Allergy, 16: 242 (May-June), 1958. [3] Spielman, A. D.: New York J. Med., 57: 3329 (Oct. 15), 1957. [4] Hunnicutt, L. G.: Bull. Vancouver M.A., 28: 348 (July), 1952. [5] Hunnicutt, L. G.: Bull. Vancouver M.A., 28: 352 (July), 1952. [6] Pirani, G. L.: Metabolism, 1: 197 (May), 1952.

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picture your patient responding to LEDERKYN*

SULFAMETHOXYPYRIDAZINE LEDERLE

TABLETS

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only one dose a day (initial dose 1 gm., then one 0.5 gm. tablet daily).

DAY 1 10-11.00 AM
Peak plasma levels in 1-2 hours.

DAY 2 8.59 AM
Effective sulpha levels maintained for 24 hours.

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Uneventful recovery.
No complications.
Patient discharged.

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0.5 gm. Bottles of 12 and 100.
LEDERKYN ACETYL PAEDIATRIC SUSPENSION
Cherry flavoured.
Bottles of 1 fl. oz.

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FELLOWSHIPS

Smith & Nephew Associated Companies Limited invite applications for awards of six Surgical Fellowships. The object of these is to enable overseas medical graduates to pursue study or research in surgery in the United Kingdom. Candidates should have had at least two years' general clinical experience since registration and should preferably have held residential hospital appointments in general medicine and surgery.

The awards will be of £1200 Sterling plus return fare to the United Kingdom, and will be tenable for one year.

All arrangements for successful applicants to follow their chosen studies will be made by the Company.

Applications, which will be considered by an appropriate medical panel, must be received by 31st July, 1961.

Application forms and further details may be obtained from

The Secretary

Smith & Nephew Associated Companies Limited

2 TEMPLE PLACE · VICTORIA EMBANKMENT · LONDON W.C.2.

℞ *Mix one out-of-date Will with specialized advice from The Equity Trustees . . . results to be kept in safe place until required.*

Since your Will was originally drafted and signed, life has grown more complex and perplexing. Have you realised that the intentions expressed in this Will may not now be flexible enough to meet today's changing circumstances? The Equity Trustees are completely experienced to help you re-plan your Will — our knowledge of Taxation and Death Duties assures the fullest benefits from your Estate.

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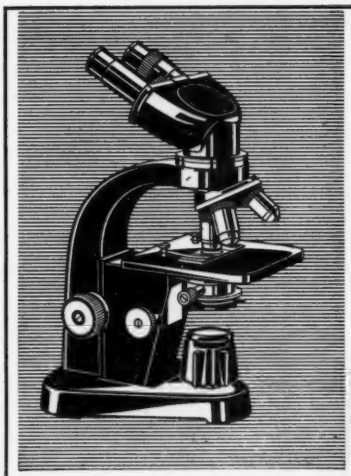

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In addition to the well-known range of Leitz Microscopes already in use throughout Australia . . . including the Laborlux illustrated . . . the newly appointed Sole Agents for E. Leitz G.m.b.H., Pyrox Ltd., wish to advise of the availability of the E. Leitz, New York

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which have been tried and tested thoroughly in the U.S.A. For further information contact:

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PRACTICES

THIRD SHARE available in three-man country (N.S.W.) practice taking £27,000 p.a. Owner going overseas. Remaining partners both have overseas experience. Large three b.r. house, nice grounds. £4000 goodwill. £4000 for house and finance available. Write No. 436 c.o. this office.

PARTNERSHIP, Coastal (near Sydney) require third partner to join existing two-man practice in rapidly expanding area with potential. Income £22,000 and increasing. Premium £2000. Pay out of income. Large rented house. Ideal surroundings. Details apply Box 1843 G.P.O., Sydney.

MEDICAL PRACTICE without purchase, available shortly, for selected applicants. Practice has returned net annual £4000 to £5000 of recent years. No competition. Fully equipped and staffed district hospital. Modern family residence (property of hospital) available. (Agency producing successful applicant will receive usual commission.) Apply c.o. R. H. BLAIR & BLAIR, Solicitors, P.O. Box 24, Manangatang, Victoria. Phone 24 or 20. Full information on inquiry.

WESTERN SUBURBS (Sydney) half-share partnership for sale. Old established practice. Modern surgery suite, pleasant working conditions. Week-ends rostered. Write No. 839 c.o. this office.

SURGEON required for group practice in N.S.W. central western city. Practice well established surgically. Excellent hospital and ancillary services. Accommodation available. Write No. 841 c.o. this office.

NORTHERN SUBURB (Sydney) solo well established G.P. practice. Excellent situation on arterial road. Spacious 3 b.r. residence, well appointed surgery. Good scope for expansion. Write No. 840 c.o. this office.

FOR SALE. Solo unopposed practice, central west N.S.W. Gross takings £7700. Commission hospital excellently equipped for surgery and obstetrics. Three-bedroomed residence with surgery for rent at £2 per week. Goodwill £1800. Easy interest-free terms. Write No. 831 c.o. this office.

WANTED. Solo Practice with house. Metropolitan area (Sydney). Write No. 844 c.o. this office.

FOR SALE. Half share, unopposed general practice, central west. N.S.W, G.C.T. £14,000. Goodwill and share furniture, equipment, etc., £3500. Write Box No. 853 c.o. this office.

WANTED, by competent medical practitioner, base of a practice in or near Sydney, 12 months to two years. Terms and conditions for arrangement. Apply Box No. 868 c.o. this office.

QUEENSLAND. Lease practice. Far N.C. until November, 1963, with option purchase. G.T. £8000 p.a. Details from BRITISH MEDICAL AGENCY OF QUEENSLAND PTY. LTD., 88 L'Estrange Tce., Kelvin Grove, Brisbane. 'Phone 2-1855.

SURGEON required for group practice in western Victoria. Excellent base hospital facilities. Write No. 861 c.o. this office.

SOUTH AUSTRALIA. Small country solo practice capable great expansion, 40 mins. Adelaide, close big English migrant satellite town. Ideal for overseas man. Spacious residence, landscaped garden, with practice, £3200. Climate does not suit owner. Apply No. 869 c.o. this office.

HALF SHARE Partnership for sale in good inner Western Suburb (Sydney). Excellent working conditions, good hospital accessible, week-ends rostered 1 in 4. Scope for expansion. G.T. £11,500, goodwill £2750. Terms available. Write No. 858 c.o. this office.

EQUAL half share, near Western Suburbs practice, Sydney, for sale. Practice mainly medical. Good hospital facilities. G.C.T. approx. £13,000. Terms. Write Box No. 862 c.o. this office.

LEASE available—June-July for 1 to 2 years—in large western country town. Ample opportunities, surgery, obstetrics and/or anæsthetics. Premium subject to negotiation includes furnished three bedroomed house with gas, electricity, H.W.S. and sewer. Apply Box No. 864 c.o. this office.

BIGGA Subsidized Doctor Committee. Applications are now invited for doctor. Practice vacant. Guaranteed income £1750 per annum. New residence provided. For further information apply: B. HAVELBERG, Bigga, 48, N.S.W. 'Phone 32.

POSITIONS WANTED

LOCUM available. F.R.C.S. June 17-30. Phone 39-2576 (Sydney).

EXPERIENCED and energetic 46 year old specialist physician, M.R.C.P. (Edin.), with university appointment seeks partnership or assistantship in a consultant or group general practice in Sydney. Able to assume duties in 3-4 months. Write No. 821 c.o. this office.

DOCTOR in early specialist practice desires part-time work in Eastern Suburbs (Sydney). Write No. 848 c.o. this office.

POSITION as receptionist, in group practice pref., in city or Eastern Suburbs (Sydney), required by Bachelor of Economics with office experience. 663-1672.

LONG-TERM LOCUM required beginning Feb.-March, 1962. Recent graduate, 2 years' hospital experience. Reply Box No. 863 c.o. this office.

DIAGNOSTIC Radiologist of good standing, free from September 1, invites suggestions for work in Sydney. Would prefer openings leading to partnership in private practice or purchase of existing practice. Write No. 865 c.o. this office.

SYDNEY TRAINED NURSE, aged 24, general certificate (St. Vincent's) post-graduate, thoracic (Royal North Shore). Just returned two years' private nursing in Europe, desires position with doctor as receptionist-nurse. Fair typing. Sydney City or Eastern Suburbs preferred. Please call Margaret Graham, 36-1829.

LOCUM available, middle-aged. Country preferred, can supply car, wife could accompany. Middle August onwards. Write Box No. 867 c.o. this office.

EXPERIENCED G.P., prior post-graduate study, seeks long-term locum with accommodation. Available from 1/7/61-mid December. Owns car. Write No. 847 c.o. this office.

WANTED. Assistantship for 6 months in Sydney area. 1957 Sydney graduate. G.P. experience. Married. Prefer accommodation. Reply Box No. 860 c.o. this office.

YOUNG married 1957 graduate with 3½ years' hospital experience plus G.P., seeks assistantship with view in Sydney area. Write No. 856 c.o. this office.

POSITIONS VACANT

THE INSTITUTE OF MEDICAL AND VETERINARY SCIENCE, ADELAIDE, SOUTH AUSTRALIA.

DIRECTOR.

Applications are invited from medical graduates for the position of Director.

This Institute is a large one with a total staff of some 185 persons and a graduate staff of approximately 50, including 23 medical graduates. The work includes both routine diagnostic pathology and research, and is carried out in the five divisions of bacteriology, biochemistry, hæmatology, surgical histopathology and virology, each with a competent head of division in charge. In addition, there is a Division of Veterinary Pathology and one division devoted to medical research.

The Institute undertakes laboratory work for the Royal Adelaide Hospital and has branch laboratories at other Government-subsidized hospitals. It also undertakes work of a public health nature and for private practitioners.

The laboratories are modern and well equipped, and there is an association with the University of Adelaide for teaching purposes. It is anticipated that the Director could spend up to one half of his time in research if he so wished.

The salary is £4300 per annum with provisions for adequate superannuation and overseas study leave. The appointment will be for five years, with eligibility for reappointment.

Applications, including the names of three referees, will be received until 31st August, 1961, and should be sent to the Chairman of the Council, Box 14, Rundle Street Post Office, Adelaide, South Australia. Further information may be obtained from the Chairman of the Council.

WANTED. Young, ambitious general practitioner as assistant, view partnership, to replace retiring partner in pleasant, mid Western Suburbs (Sydney) with physician. Scope for all aspects of general practice. £50 per week. £5 car allowance. Box No. 835 c.o. this office.

ASSISTANT, view partnership, wanted for near south coast, N.S.W. practice. Equal third share after six months on terms. 50 guineas per week. Petrol, oil and car allowance. Rent-free flat. Apply Box No. 693 c.o. this office.

WEEK-END LOCUM required St. George area (Sydney). £6 per day. Write No. 851 c.o. this office.

AUSTRALIAN IRON & STEEL PTY. LTD., PORT KEMBLA.

Applications are invited for the position of

MEDICAL OFFICER

at the Port Kembla Works. Preference may be given to applicants under the age of 40 years.

Duties: To treat employees for industrial and non-industrial injuries and diseases under the direction of the Works' Medical Officer, and to perform routine medical examinations.

Salary: Commencing salary £2800-£3100 depending on experience.

Superannuation benefits are available with free life assurance coverage until superannuation coverage is reached.

Applications, in writing, giving personal particulars, qualifications and experience to The General Manager, Australian Iron & Steel Pty. Ltd., Port Kembla.

DEPARTMENT OF PUBLIC HEALTH, N.S.W.

DIVISION OF MATERNAL AND BABY WELFARE.

SENIOR MEDICAL OFFICER.

Applications are invited from medical practitioners holding qualifications registrable in New South Wales for a full-time position of Senior Medical Officer in the Division of Maternal and Baby Welfare.

Qualifications: Diploma of Public Health or special experience in Public Health or Maternal and Child Care equivalent thereto.

Duties: To assist the Director and Deputy Director in the general administration of the Division. This includes the establishment and management of baby health centres and all other activities related to Public Health practice in Maternal and Baby Welfare.

Location: Headquarters are in Sydney but some country work is involved. Travelling and accommodation expenses in accordance with the New South Wales Public Service scale are paid whilst the officer is engaged on country work.

Salary: The present salary is £3188.

Superannuation: Superannuation is available on appointment subject to production of proof of age and a satisfactory medical report.

Other Information: Further information can be obtained from the Director of Maternal and Baby Welfare, Box 3944, G.P.O., Sydney.

Applications: Applications with copies of recent testimonials or the names of referees should be submitted to the Secretary, Public Service Board, 19 O'Connell St., Sydney, on or before 4th July.

ASSISTANT, view partnership, required for large Sydney suburban group practice to start August 1. Senior qualifications in medicine with special interest and experience in paediatrics preferred. Salary £60 with petrol and oil. The Thomas Clinic, 97-3830.

ASSISTANT (married), view partnership in 3-man practice in Wollongong area. Salary £40 plus £5 car allowance plus rent-free cottage. Apply No. 854 c.o. this office.

POSITIONS VACANT—Contd.

THE UNIVERSITY OF SYDNEY.

CHAIR OF PHYSIOLOGY.

Applications are invited for the recently established second Chair of Physiology. Preference will be given to applicants qualified in fields of physiology other than that of neuro-physiology. Salary will be at the rate of £4250 per annum, plus cost of living adjustments (at present £42 p.a.). There is retirement provision under the Sydney University Professorial Superannuation Scheme or the New South Wales State Superannuation Scheme. Under the Staff Members' Housing Scheme, in cases approved by the University and its Bankers married men may be assisted by loans to purchase a house. The Senate reserves the right to fill the Chair by invitation. A statement of conditions of appointment and information for candidates may be obtained from the undersigned, with whom applications close on 18th August, 1961.

Sydney, June, 1961. M. A. TELFER, Registrar.

UNIVERSITY OF MELBOURNE.

CHAIR OF MEDICINE.

Applications are invited for the above Chair which is one of the two Chairs in the Department of Medicine.

The salary will be £4950 per annum, but it is expected that there will be an increase of £250 in the near future. Superannuation similar to F.S.S.U. will be provided.

Conditions of appointment may be obtained from the Registrar, University of Melbourne, Parkville, N.2, Victoria, and applications should reach him by 31st July, 1961.

5/6/61. F. H. JOHNSTON, Registrar.

UNIVERSITY OF LONDON.

CHAIR OF CLINICAL NEUROLOGY AT THE INSTITUTE OF NEUROLOGY.

The Senate invites applications for the Chair of Clinical Neurology tenable at the Institute of Neurology (salary within the range £3200 to £3900 a year). Applications (10 copies) must be received not later than 5th September, 1961, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars may be obtained.

ASSISTANT, with or without view to partnership, required for group practice in prosperous provincial centre in western Victoria. Excellent base hospital facilities. Salary £3000 per annum. Write to Box No. 857 c.o. this office.

SYDNEY North Shore group general practice requires assistant view partnership to replace doctor going overseas. £60 plus car allowance. Write No. 852 c.o. this office.

THE UNIVERSITY OF SYDNEY.

CHAIR OF EYE HEALTH.

Applications are invited for the recently endowed Chair of Eye Health. Salary will be at the rate of £4930 per annum, plus cost of living adjustments (at present £42 p.a.). There is retirement provision under either the Sydney University Professorial Superannuation Scheme or the New South Wales State Superannuation Scheme. Under the Staff Members' Housing Scheme, in cases approved by the University and its bankers, married men may be assisted by loans to purchase a house. The Senate reserves the right to fill the Chair by invitation. A statement of conditions of appointment and information for candidates may be obtained from the undersigned, with whom applications close on 15th August, 1961.

Sydney, May, 1961. M. A. TELFER, Registrar.

ASSISTANT wanted for six to twelve months commencing June, 1961. Eastern Suburbs practice. Live out. 60 guineas p.w. petrol and oil. Write No. 792 c.o. this office.

MALE Assistant with view early partnership in rapidly expanding practice. Surgical experience preferred. Excellent opportunity. Salary £45 per week plus usual allowances. Write No. 870 c.o. this office.

ASSISTANT required for inner Western Suburbs (Sydney) practice. Live out. £60 per week plus petrol allowance. Term 6-12 months. A profitable partnership will be offered at the end of this period if mutually agreeable. Apply Box 849 c.o. this office.

ASSISTANT with or without view to 3-man rapidly expanding practice on North Shore (Sydney). Salary £60 p.w. plus petrol and oil. Write No. 832 c.o. this office.

LOCUM required for group practice, Perth. Twelve months from September, 1961. £40 p.w. and car expenses. Reply Box No. 837 c.o. this office.

PERMANENT part-time assistant, group practice, outer Western Suburbs (Sydney). Salary £30. Write Box No. 866 c.o. this office.

HOSPITAL APPOINTMENTS

ROYAL SOUTH SYDNEY HOSPITAL, JOYNTON AVENUE, ZETLAND.

Applications are invited from registered medical practitioners for the position of

VISITING PATHOLOGIST.

Payment on sessional basis, 3 sessions a week, plus proportion of P. and I. fees. Sessional fee £4 4s. for the first hour and £1 1s. for each subsequent half hour.

Applications should be forwarded to the undersigned not later than Friday, 7th July, 1961. (Application forms will be forwarded on request.)

R. T. WRIGHT, Secretary and Chief Executive Officer.

ROYAL NEWCASTLE HOSPITAL.

MEDICAL REGISTRAR

Vacancy exists at Royal Newcastle Hospital for a medical registrar, successful applicant to commence duties as early as possible.

This post offers opportunity for training as a specialist physician. Salary range £34 1s. 7d. to £39 16s. 8d. Experience in general practice would be favourably viewed. Applicants should have had at least 3 years' experience since graduation. The appointee would be expected to proceed to a post-graduate degree in medicine.

Applicants should submit full particulars of qualifications and experience and enclose copies only of any credentials.

Applications to be addressed to Dr. R. Gibson, Royal Newcastle Hospital.

A. E. SHARP, Secretary.

PRINCE HENRY HOSPITAL, SYDNEY.

APPOINTMENT OF HONORARY RADIOLOGISTS AND HONORARY ASSISTANT RADIOLOGISTS.

The Prince Henry Hospital, which is a teaching hospital of the University of New South Wales, invites applications from suitably qualified medical practitioners for appointment as Honorary Radiologists and Honorary Assistant Radiologists.

Private and intermediate facilities are being made available.

Further information and application forms may be obtained from the undersigned.

Applications close on 14th July, 1961.

H. H. DICKINSON, Chief Executive Officer.

THE BROKEN HILL AND DISTRICT HOSPITAL, P.O. BOX 457, BROKEN HILL, N.S.W.

Applications are invited for the position of

RESIDENT MEDICAL OFFICERS (Male or Female)

at Broken Hill and District Hospital.

Salary range: £1107-£2107, according to years of service in hospitals, less £3 18s. 6d. per week for board and lodgings. In addition, a Broken Hill margin of £130 will be paid after 12 months' satisfactory service. In the case of married applicants, a furnished residence is available at a nominal rental. Thirty days' annual leave; rail or air fares refunded after 6 months' service.

Duties: Rotating residencies every three months in medicine, surgery, casualty, obstetrics and anæsthetics. Daily average inpatients 265.

Applications addressed to the Medical Superintendent should state full name, age, marital status, full particulars of qualifications and experience, and enclose copies only of any credentials.

R. H. NANKIVELL, Secretary-Business Manager.

ROYAL SOUTH SYDNEY HOSPITAL, JOYNTON AVENUE, ZETLAND.

SURGICAL REGISTRAR.

Applications are invited from registered medical practitioners for the position of Surgical Registrar at the above hospital.

The hospital is recognized for the F.R.C.S. and F.R.A.C.S. examinations. For further particulars contact the Medical Superintendent.

Salary in accordance with the Determination of the Hospitals Commission of N.S.W.

Application forms will be forwarded on request and when completed should be forwarded to reach the undersigned not later than Friday, 14th July, 1961.

R. T. WRIGHT, Secretary and Chief Executive Officer.

THE ROYAL NORTH SHORE HOSPITAL OF SYDNEY.

HONORARY MEDICAL STAFF.

Applications are invited for appointment to the following position:

HONORARY SURGEON, GYNÆCOLOGY AND OBSTETRICS.

In the event of an assistant surgeon or reliever being promoted, there will be consequent vacancies in these classifications.

Applications, accompanied by copies of at least 2 testimonials, should be made on the hospital's printed form, which will be supplied on request.

Closing date, 12th July, 1961.

WALLACE FREEBORN, General Medical Superintendent.

THE ROYAL NORTH SHORE HOSPITAL OF SYDNEY.

HONORARY MEDICAL STAFF.

CLINICAL ASSISTANT IN OBSTETRICS AND GYNÆCOLOGY.

Applications are invited for the above appointment, with duties commencing as soon as arrangements can be made.

Applications should be accompanied by copies of at least two testimonials, and be on the hospital's printed form which will be supplied on request.

WALLACE FREEBORN, General Medical Superintendent.

ROYAL HOSPITAL FOR WOMEN, PADDINGTON, N.S.W.

Applications on the prescribed form are invited for the position of

RESIDENT MEDICAL OFFICER IN OBSTETRICS.

Salary in accordance with Hospitals Commission determination. Particulars from Medical Superintendent. Canvassing of Directors is prohibited.

W. L. PERRY, Secretary, Benevolent Society of N.S.W., 183 Oxford Street, Paddington.

HOSPITAL APPTS.—Contd.

SUTHERLAND DISTRICT HOSPITAL, CARINGBAH.

PATHOLOGIST.

Applications are invited for the position of Pathologist at the abovenamed hospital.

The position is a full-time specialist staff appointment carrying a salary within the range £2956-£3556 per annum.

Well equipped modern 292-bed hospital, covering medical, surgical and obstetric patients, in perimeter suburb of Sydney, with delightful ocean, river and bay surroundings. Full staff of honorary (specialist) medical officers.

Pathological laboratory has biochemistry, hæmatology, bacteriology, histopathology and post-mortem departments, with technical staff and modern equipment.

The successful applicant will be required to commence duties as soon as possible after 1st August, 1961.

Applications to be made on standard form, obtainable on request, and to reach the undersigned no later than Wednesday, 12th July, 1961.—K. J. N. TUCK, Secretary and Chief Executive Officer, P.O. Box 21, Caringbah. (52-0311).

AUCKLAND HOSPITAL BOARD, NEW ZEALAND.

Applications are invited from suitably qualified medical practitioners for the position of:

JUNIOR MEDICAL SPECIALIST AND MEDICAL TUTOR, BRANCH MEDICAL FACULTY, AUCKLAND HOSPITAL.

The appointment is a full-time one for a period of two years from 1st January, 1962. If during that period the appointee has satisfactorily carried out the duties of the position, and if so desired, an extension of the term for a further limited period would be considered by the Board. The position is non-residential.

Salary and conditions of employment are in accordance with the Hospital Employment (Medical Officers') Regulations 1957. Salary

£(N.Z.)1900-£(N.Z.)2300

per annum by annual increments of

£(N.Z.)125-£(N.Z.)125-£(N.Z.)150.

(The commencing salary within this scale will be in accordance with qualifications and experience in this specialty.)

In addition the appointee will receive £(N.Z.)100 per annum from the University of Otago for tutoring sixth year medical students. Assistance will be given towards payment of the appointee's travelling expenses to New Zealand.

Conditions of appointment and form of application may be obtained from The Secretary, Auckland Hospitals Board, Wellesley Street East, Auckland, C.1, New Zealand.

Applications close at the office of the Board at noon on Friday, 28th July, 1961.

R. F. GALBRAITH, Secretary.

SPRINGSURE HOSPITALS BOARD.

PART-TIME MEDICAL SUPERINTENDENT.

Applications are invited for the position of Part-Time Medical Superintendent at the Springsure Hospital.

Salary classification: £1510-£1635 p.a.

The appointment carries the right of private practice.

Four weeks' annual leave on full pay.

A spacious unfurnished residence is provided by the Hospitals Board free of rental, including private surgery.

Two months' notice of termination of employment to be given on either side.

Applications should include age, marital status, qualifications and experience of applicant, together with references, and should be addressed to the Secretary, Springsure Hospitals Board, P.O. Box 14, Springsure, Queensland.

J. W. SMITH, Secretary.

BOX HILL AND DISTRICT HOSPITAL

Applications are invited for a position as a

SURGICAL REGISTRAR

for a period of 12 months. This is a new post approved by the Royal Australasian College of Surgeons for training in surgery.

The appointee must be a graduate of at least three years' standing when beginning this appointment and it is desired that applicants shall have passed the primary F.R.A.C.S. or a corresponding examination.

Salary (fourth year) £1900 per annum. For further details and application forms contact Medical Superintendent, 89-0211.

Applications close with the undersigned on 5th July, 1961.

A. J. ANDREWARTHA, Manager.

ROYAL SOUTH SYDNEY HOSPITAL, JOYNTON AVENUE, ZETLAND.

Applications are invited from registered medical practitioners for the position of

HONORARY PHYSICIAN.

In the event of the above position being filled by one of the present Honorary Assistant Physicians there will be a vacancy for an

HONORARY ASSISTANT PHYSICIAN.

In the event of the above position being filled by the present Relieving Honorary Assistant Physician, there will be a vacancy for a

RELIEVING HONORARY ASSISTANT PHYSICIAN.

Application forms will be forwarded on request and when completed should be forwarded to reach the undersigned not later than Friday, 7th July, 1961.

R. T. WRIGHT, Secretary and Chief Executive Officer.

CAIRNS BASE HOSPITAL, QUEENSLAND.

RESIDENT MEDICAL OFFICER.

Applications are invited for a vacancy at the Cairns Base Hospital as Resident Medical Officer. Salary classification: 1st year £1673 10s., 2nd year £1888 10s., 3rd year £2103 10s., 4th year £2353 10s., which includes allowances to date.

Medical staff comprises medical superintendent, medical registrar, surgical registrar, and five resident medical officers. Hospital daily average 205. Active surgical and medical units. Board and accommodation is provided single appointee or £100 allowance in lieu to married officer living out. Specialists in surgery, medicine, orthopædics, E.N.T., ophthalmology, dermatology, radiology, and radium visit hospital at regular intervals. Applicants to state age, qualifications, experience and marital status. Also attach copies of testimonials. Notice of termination of service one month either side. Applications close with the Secretary, Box 902 Cairns, on Thursday, 29th June, 1961.

A. C. MCALLISTER, Secretary.

ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, CAMPERDOWN, N.S.W.

HONORARY MEDICAL STAFF.

Written applications, with copies of testimonials, are invited for appointment to the following vacant positions:

Ear, Nose and Throat Surgery.

Assistant Ear, Nose and Throat Surgeon (1 vacancy).

Anæsthesia.

Anæsthetists (1 vacancy).

Radiology.

Assistant Radiologists (2 vacancies, one of which will be for general pædiatric radiology and the other of which will include attendance at the Congenital Heart Disease Clinic or at the Thoracic Diseases Clinic or at a neuroradiology session).

Surgery.

Temporary Relieving Assistant Surgeon (1 vacancy—part of the duties of the appointee will be associated with the neurosurgical team).

Psychiatry and Child Guidance.

Assistant Physician, Psychiatry and Child Guidance Department (1 vacancy).

The above appointments will be for a period of four years, except for the Temporary Relieving Assistant Surgeon position which will be for two years only.

Application forms, which must be used, and copies of the conditions of appointment are obtainable at the hospital. One of such forms (with copies of testimonials) to be forwarded to the Chief Executive Officer of the Hospital, and 12 duplicates (with copies of testimonials) to the Registrar, University of Sydney, before noon, Monday, 17th July, 1961.

MARGARET TELFER (Registrar, University of Sydney); J. C. FULTON (Chief Executive Officer and Medical Superintendent, Royal Alexandra Hospital for Children), Joint Honorary Secretaries to Conjoint Board.

AUCKLAND HOSPITAL BOARD, NEW ZEALAND.

Applications are invited from suitably qualified medical practitioners for the position of

JUNIOR OR SENIOR SURGICAL REGISTRAR, MIDDLEMORE HOSPITAL.

The appointment is a full-time one for a period of two years from 1st January, 1962. If during that period the appointee has satisfactorily carried out the duties of the position, and if so desired, an extension of the term for a further limited period would be considered by the Board. Preference will be given to those applicants who qualify as "Senior Registrar". Married accommodation is available.

Salary and conditions of employment are in accordance with the Hospital Employment (Medical Officers') Regulations 1957. The salary prescribed by these regulations is:

"Junior Registrar"

£(N.Z.)1220-£(N.Z.)1300

per annum living in.

"Senior Registrar"

£(N.Z.)1400-£(N.Z.)1450*-£(N.Z.)1525-£(N.Z.)1600

per annum living in.

* Minimum with higher qualification.

(The commencing salary within this scale will be in accordance with qualifications and experience in this specialty.)

Assistance will be given towards payment of the appointees' travelling expenses to New Zealand.

Conditions of appointment and form of application may be obtained from The Secretary, Auckland Hospital Board, Wellesley Street East, Auckland, C.1, New Zealand.

Applications close at the office of the Board at noon on Friday, 28th July, 1961.

R. F. GALBRAITH, Secretary.

PRINCE HENRY HOSPITAL

(UNIVERSITY OF NEW SOUTH WALES.)

The hospital invites applications from suitably qualified medical graduates for the posts of

HONORARY ASSOCIATE IN MEDICINE AND HONORARY ASSOCIATE IN PSYCHIATRY.

Applicants will be expected to have a higher degree in their specialty and to give evidence of adequate post-graduate training and experience.

These posts are intended to provide an opportunity for prospective members of the full honorary staff to participate in the general work of the hospital, out-patients and in-patients care, registrar training, special clinics and so on. They will be renewable annually.

Applications close on July 14, 1961. Application forms and further information may be obtained from the undersigned.

H. H. DICKINSON, Chief Executive Officer.

HOSPITAL APPTS.—Contd.

AUCKLAND HOSPITAL BOARD, NEW ZEALAND.

Applications are invited from qualified medical practitioners of the British Commonwealth for the position of

JUNIOR PÆDIATRIC SPECIALIST, AUCKLAND HOSPITAL.

The appointment is a full-time one for a period of two years from 1st January, 1962. If during that period the appointee has satisfactorily carried out the duties of the position, and if so desired, an extension of the term for a further limited period would be considered by the Board. The position is non-residential.

The salary prescribed by the Hospital Employment (Medical Officers') Regulations 1957 is: Junior Specialist £(N.Z.)1900-£(N.Z.)2300 per annum by annual increments of £(N.Z.)125, £(N.Z.)125, £(N.Z.)150. (The commencing salary within this scale will be in accordance with qualifications and experience in the specialty.) In addition the appointee will receive £(N.Z.)100 per annum from the University of Otago, for tutoring sixth year medical students.

Assistance will be given towards payment of appointees' travelling expenses to New Zealand.

Conditions of appointment and form of application may be obtained from The Secretary, Auckland Hospital Board, Wellesley Street East, Auckland, C.1, New Zealand.

Applications close at the office of the Board at noon on Friday, 28th July, 1961.

R. F. GALBRAITH, Secretary.

SYDNEY HOSPITAL.

HONORARY MEDICAL STAFF.

TEMPORARY HONORARY ASSISTANT RADIOLOGIST.

Applications closing 15th July, 1961, are invited from legally qualified medical practitioners for the above position at Sydney Hospital.

The appointment will be until 30th November, 1961.

Canvassing of members of the Board will disqualify.

Application must be made on Sydney Hospital application forms, obtainable from the Secretary.

Applications should be addressed to the undersigned, Macquarie St., Sydney.

E. C. DOCKING,
Secretary.

BALMAIN AND DISTRICT HOSPITAL.

HONORARY RELIEVING ANÆSTHETIST.

Applications are invited for the position of Honorary Relieving Anæsthetist at the Balmain and District Hospital.

Apply stating age, qualifications and enclosing copies of references to K. R. J. BOYLAN, Chief Executive Officer and Secretary, Booth Street, Balmain, telephone 82-0501.

ATHERTON HOSPITAL.

RESIDENT MEDICAL OFFICER.

Applications are invited for the position of Junior Resident Medical Officer at the Atherton Hospital, North Queensland. Salary classifications at present including all basic wage adjustments: first year £1620, second year £1835, third year £2050, fourth year £2300, to which is to be added basic wage adjustment of £22 10s. and Northern allowance £50. A furnished brick residence with modern conveniences is available with free light and power. Free board and lodging provided for a single person. Atherton is situated on the Atherton Tablelands, 2300 feet above sea level and is connected to all main centres by rail and bitumen road. Hospital daily average—80 in-patients, 60 out-patients.

Apply: Secretary, Atherton Hospitals Board.

SYDNEY HOSPITAL.

DIRECTOR OF DIAGNOSTIC RADIOLOGY.

Applications closing August 15, 1961, are invited for the above position.

Salary within the full time specialist range £3191-£4151. Commencing salary will be fixed in accordance with qualifications and experience of successful applicant. The rates are subject to cost of living variations within the State of New South Wales.

Applicants must have at least five years' experience and hold higher qualifications in Radiology.

Appointment will be for a term of four years, subject to satisfactory service, and successful applicant may be eligible for re-appointment for a further term.

Application forms may be obtained from the undersigned.

Applications should be addressed to the undersigned, and envelopes endorsed "Director of Diagnostic Radiology".

E. C. DOCKING,
Secretary.

BALMAIN AND DISTRICT HOSPITAL.

HONORARY SENIOR EAR, NOSE AND THROAT SURGEON.

Applications are invited for the above position at the Balmain and District Hospital. Apply stating age, qualifications, and enclosing copies of references to K. R. J. BOYLAN, Chief Executive Officer and Secretary, Booth Street, Balmain, telephone 82-0501.

ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, CAMPERDOWN, N.S.W.

Applications are invited for one vacancy for a

JUNIOR RESIDENT MEDICAL OFFICER

for 6 months commencing in July, 1961. Salary within the range £1386-£1986, according to Hospitals Commission of N.S.W. determination.

J. C. FULTON,
Chief Executive Officer and Medical Superintendent.

TOWNSVILLE GENERAL HOSPITAL.

RESIDENT MEDICAL OFFICER.

Applications are invited for a position as Resident Medical Officer, Townsville Hospital.

Salary classification £1684-£2364 per annum which includes Northern Allowance and Basic Wage Adjustment to date.

Commencing salary in accordance with previous experience of appointee.

Full board and accommodation is provided for single men and £100 per annum is paid in lieu to married men living out.

Annual recreation leave, 4 weeks.

Annual sick leave: 1 week on full pay, 1 week on half pay.

The medical staff comprises medical superintendent, surgical, medical, orthopædic, anæsthetic and out-patients' registrars, ten resident medical officers and a part-time consultant staff.

Daily average in-patients 350, out-patients 250.

Applicants are required to advise the date on which they can commence duty, and must be prepared to give an undertaking that, if appointed, they will remain in the services of the Board until 31st December, 1961.

The duties of resident medical officers include a term at Palm Island Native Hospital, and rotating residencies in medicine, general surgery, orthopædic surgery, gynæcology and obstetrics, ear, nose and throat and eye, psychiatry, pædiatrics and anæsthetics.

This hospital is a modern, well equipped hospital, which acts as a base hospital for a large area of north Queensland and which provides excellent training for resident medical officers.

Applications should be addressed to the Secretary, Townsville Hospitals Board, Townsville.

Applicants must state full name, age, qualifications, experience and marital status.

Certified copies (not originals) of testimonials should be forwarded.

PARRAMATTA DISTRICT HOSPITAL.

HONORARY ANÆSTHETIST (TEMPORARY).

Applications are invited from registered medical practitioners with the requisite qualifications for the position of Temporary Honorary Anæsthetist on the honorary staff of the Parramatta District Hospital. The successful applicant will be required to attend at the hospital each Monday morning extending into the afternoon.

The appointment will be, initially, to 31st January, 1963.

Further information regarding duties, etc., may be obtained from the Medical Superintendent.

Applications on the prescribed form, which may be obtained from the undersigned, are to be lodged with the undersigned by 14th July, 1961.

JAMES F. LIDDY,
Chief Executive Officer and Secretary.

SYDNEY HOSPITAL.

KANEMATSU MEMORIAL INSTITUTE.

LOCUM TENENS PATHOLOGIST.

Applications closing 15th July, 1961, are invited from legally qualified medical practitioners for the above post in the Morbid Anatomy Department. Applicants must be experienced morbid anatomists, trained in surgical frozen section technique.

Salary and conditions in accordance with Hospitals Commission's determination. The position is for a period of approximately five months, relieving a pathologist who is away on study leave.

Application forms are available from the Secretary. Applications to be addressed to the undersigned.

E. C. DOCKING,
Secretary.

LEWISHAM HOSPITAL, SYDNEY.

HONORARY MEDICAL STAFF.

Applications in writing and accompanied by testimonials are invited for the position of

TEMPORARY RELIEVING ASSISTANT NEURO-SURGEON.

Applications to be forwarded to Reverend Mother, Lewisham Hospital, West Street, Petersham, N.S.W., by July 21st, 1961.

AUSTIN HOSPITAL, HEIDELBERG, VICTORIA.

RESIDENT MEDICAL OFFICER.

Applications are invited from qualified medical practitioners for appointment as Resident Medical Officer at the Austin Hospital, Heidelberg.

Salary according to experience will be within the range of £1100 to £2150 per annum, as set out in the Hospitals and Charities Commission scale.

Board and residence provided without charge.

Initially, the appointment will be to February, 1962, at which date a further appointment may be arranged.

Further details may be obtained from the Medical Superintendent, 'phone JL 1201.

Applications, in writing, stating age, marital status, and previous experience, together with copies of testimonials, should be addressed to the undersigned.

W. M. POWELL,
Manager and Secretary.

LEWISHAM HOSPITAL, SYDNEY.

HONORARY MEDICAL STAFF.

Applications in writing and accompanied by testimonials are invited for the position of

Assistant Physicians. (Two vacancies.)

Clinical Assistant Physicians. (Four vacancies, two of which are new appointments.)

Applications to be forwarded to Reverend Mother Superior, Lewisham Hospital, West Street, Petersham, N.S.W., by 31.7.61.

MEDICAL AGENTS

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1. N.S.W. Large Country Town. Solo practice with gross cash averaging £6300 and increasing. Base hospital. Lock-up surgery suite to rent at £7 10s. per week. Goodwill £2000.

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HOSPITAL APPTS.—Contd.

RENWICK HOSPITAL FOR INFANTS, SUMMER HILL.

Applications on the prescribed form are invited for the position of

RESIDENT MEDICAL OFFICER.

Salary in accordance with Hospitals Commission determination. Particulars from Medical Superintendent. Canvassing of Directors is prohibited.

W. L. PERRY, Secretary, Benevolent Society of N.S.W., 188 Oxford Street, Paddington (Sydney).

BOX HILL AND DISTRICT HOSPITAL.

SESSIONAL ANÆSTHETISTS.
(Five appointments, two of which are new.)

The Board of Management invites applications from appropriately qualified medical practitioners for appointment as sessional anæsthetists. The three current appointees retire by effluxion of time and are eligible to apply for reappointment. The appointments will be effective from 1st October, 1961, and will terminate on either 30th June, 1962, or 30th June, 1963—as the Board may determine. Remuneration will be on the following basis:

Specialist/Assistant Specialist: £350 to £400 p.a. per session.

Other Sessional Appointees: £350 p.a. per session.

For all relevant details please contact the Director of Anæsthesia, Dr. B. L. Dunn, 89-0211. Applications on the prescribed form available at the hospital close with the undersigned on 17th July, 1961.

A. J. ANDREWARTHA,
Manager.

SERVICE for DOCTORS

MEDICAL AGENCY

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PRACTICES AVAILABLE FOR TRANSFER (SUBJECT TO PRIOR SALE).

Practice No. 50 (P).—Sydney Inner Suburb.

Partnership equal half share old established general practice—lock-up professional suite. A.G.C.T. £11,600. Goodwill £2750. Deposit £1000, balance at bank rate interest repayable over three years.

Practice No. 49 (P).—Sydney Inner Suburb.

Equal half share partnership in old established practice, in vendor's hands 38 years. Spacious, modernly equipped lock-up professional suite consisting of two surgeries, operating room, laboratory and waiting room, etc., on weekly rental. A.G.C.T. £11,500, goodwill £3300. Instruments at valuation. Property: Large brick two-storey residence, four bedrooms, sunroom—delightful entertaining area. Purchase price £9500. Vendor will consider disposing of practice without residence, if desired. Terms available for both propositions.

Practice No. 186.—Central West N.S.W.

Solo practice established 100 years, in vendor's hands seven years. Population town and district 4000. District hospital, modern facilities, 35 beds. A.G.C.T. £7500. Large family residence approx. 25 squares, three bedrooms, sleep-out, sunroom, separate lounge and dining room, good bathroom and kitchen. Double garage, septic (2). Surgery, waiting room, etc. Ideally situated to shops and schools, etc. Goodwill £2500, property £4500. Deposit £1000, balance repayable at bank interest rate quarterly rests, over period as desired.

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ROMA HOSPITALS BOARD.

INJUNE HOSPITAL (Q'LD.).

MEDICAL SUPERINTENDENT (PART-TIME).

Applications are invited for Part-Time Medical Superintendent at the Injune Hospital with right of private practice. Salary classification £1885 per annum; leave entitlement four (4) weeks' paid recreational leave—one (1) week full pay sick leave and one (1) week half pay. Superannuation not applicable to position.

New residence will be available at a nominal rental.

Injune Hospital will have a 10-bed capacity and is at present under construction. Opening anticipated August or September. Town of Injune has previously not been serviced with a hospital or resident medical practitioner.

Conditions of employment two (2) months' notice either side.

Applicants to state marital status, age, qualifications, etc., and date available for duty and forward copies of references.

Applications close July 27, 1961, and should be addressed to the Secretary, Roma Hospitals Board, P.O. Box 124, Roma.

FOOTSCRAY AND DISTRICT HOSPITAL.

HONORARY RELIEVING OBSTETRICIAN-GYNÆCOLOGIST.

Applications are invited from suitably qualified medical practitioners for appointment as Honorary Relieving Obstetrician-Gynæcologist.

Application forms and full details may be obtained from the Medical Superintendent.

Applications should be lodged with the undersigned by 4 p.m. on 30th June, 1961.

E. A. FRANCE,
Manager-Secretary.

PRINCE HENRY'S HOSPITAL, ST. KILDA ROAD, MELBOURNE,

has a vacancy for a

SESSIONAL ANÆSTHETIST

for the Neuro-Surgical Unit. One session per week. Salary £10 10s. per session.

Apply in writing to the undersigned from whom further particulars are available.

W. A. CROSS,
Manager and Secretary (Acting).

SYDNEY HOSPITAL

HONORARY MEDICAL STAFF.

Applications closing 15th July, 1961, are invited from legally qualified medical practitioners for the following position at this hospital.

Honorary Clinical Assistant in Psychiatry.

Appointment will be until 31st December, 1961, and the successful applicant will be eligible for re-appointment in 1962.

Canvassing of members of the Board will disqualify.

Applications to be addressed to the undersigned, from whom application forms are obtainable.

E. C. DOCKING,
Secretary.

MISCELLANEOUS

THE UNIVERSITY OF WESTERN AUSTRALIA.

THE ATHELSTAN SAW MEDICAL RESEARCH FELLOWSHIP.

Applications are invited for the abovementioned Fellowship from any graduate in Medicine, Science or Arts of any recognized University in the United Kingdom, the Commonwealth of Australia, or in any other British Possession or Dominion or from any person who may be the holder of a medical diploma which would entitle him to be registered as a medical practitioner in Western Australia.

The Fellow will be expected to carry out an approved research programme in the causation, prevention and cure of disease. Without, however, restricting the field of research the Founder suggested that the inaugural project might embrace diabetes mellitus.

The maximum annual value of the Fellowship, the tenure of which is for one year in the first instance, is £2500, but the rate at which a Fellow is appointed will depend upon his qualifications and research experience.

An appointee from Australia or New Zealand will be granted first-class rail and/or steamer fares from place of residence to Perth and an appointee from overseas will be paid a contribution not exceeding £500 towards his return fare from place of residence to Perth.

It is important that intending applicants obtain details of the procedure to be followed in applying for the post and a copy of the conditions of appointment before submitting their applications. This information is available from the undersigned with whom applications close on 12th August, 1961.

A. J. WILLIAMS,
Registrar.

KINGS CROSS (Sydney). Furnished, equipped rooms available on lease basis for general practitioner or specialist. Write No. 859 c.o. this office.

BEXLEY NORTH (Sydney). Professional rooms available, fully equipped. Bexley North shopping centre. Write No. 859 c.o. this office.

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THE UNIVERSITY OF SYDNEY.

TRAINING FELLOWSHIP IN MEDICAL PHYSICS.

Applications are invited for a Training Fellowship in Medical Physics, tenable in the Department of Medicine, University of Sydney. Applicants should hold a university degree, preferably with Honours, in Physics or Medicine, or in some other discipline relevant to medical physics. It is desirable, but not essential, for applicants to have had some experience in their profession.

The Fellowship will normally continue for three years at a stipend within the range £1400-£1800 per annum depending upon age, qualifications and experience. The stipend may be tax free depending upon the qualifications of the appointee.

The successful applicant will devote his whole time to courses of lectures and research training in the Department of Medicine, or elsewhere as directed. His studies will be supervised and assisted by Senior Lecturers in Biophysics and Radiation Medicine and by other qualified members of staff. An early opportunity will be offered to initiate research in some aspect of medical physics.

Details of the facilities available in the Department and of the course of training envisaged may be obtained from the Registrar, University of Sydney, to whom applications, giving details of education, qualifications and experience and the names of at least two referees, should be forwarded.

Sydney, June, 1961. M. A. TELFER, Registrar.

GOLD COAST, Q'LD. Ground floor premises suitable doctor or dentist in area which requires both. Flat avail. if required. Further details RITA BLAIR, Main Beach, Southport. 'Phone 2-1216.

MEDICAL PRACTITIONERS SUPER-ANNUATION FUND

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Write for full particulars, without obligation, to the Secretary.

F. S. SCORER, F.C.I.S.,
Secretary.

T. & G. Building,
Cnr. Hunter and Watt Streets,
Newcastle, N.S.W.
20th March, 1961.

WILLIAM PEARCE

MEDICAL AGENCY SERVICE

No. 577. Central Western Slope. N.S.W. Opposed general practice in very pleasant township, 185 miles from Sydney, offering excellent living conditions, well equipped district hospital. Average G.C.T. £18,000. Architect designed residence has three bedrooms, sleepout, professional rooms, all conveniences. Residence £4500. Terms available. Goodwill will be transferred without charge to purchaser.

No. 617. North Shore Line. Sydney. General practice established 15 years in select residential area. Present income small, but a substantial nucleus exists which could quickly be expanded. Well designed residence of three bedrooms has recently been renovated and modernized at considerable expense. Inclusive price £12,000. Finance available.

No. 618. North Side. Sydney. A partnership of four members offers a vacancy for a fifth partner. Gross income exceeds £35,000. Practice conducted from well appointed rooms adjacent to important residential and business section. Excellent working conditions provide for liberal free time. Premium (including share of partnership assets) £5000 payable on easy terms.

No. 619. Main Suburban Line. Sydney. Three-man partnership taking £22,000 gross has equal one third share for transfer. Practice is conducted from conveniently located and well equipped premises owned by partnership close to hospitals. Premium covering share of goodwill, real estate, furniture and equipment £6000 cash.

No. 620. Country. N.S.W. General practice established many years in town of 20,000 inhabitants with base hospital. Average gross takings £6000. Also for sale distinguished family residence of two storeys standing in large grounds including tennis court and well tended garden. Two surgeries, waiting room, office, ample living, 5 bedrooms. Goodwill £2500. Property £15,000. Terms. If desired, goodwill may be purchased separately. Residence available for rental one year only without option.

No. 621. Sydney Suburban. Half share available in partnership practice established many years in pleasant waterside suburb close to city. Average gross £11,600. Practice has access to hospital facilities and prospects of expansion are favourable. Goodwill £2800.

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Phone: 61-8821.

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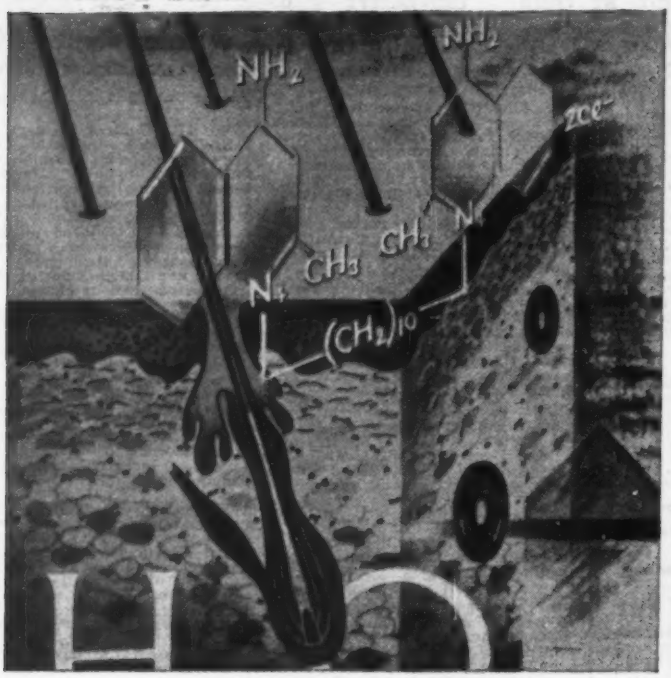

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Dequalone-P, containing Dequadin (dequalinium) chloride 0·4% and Prednisolone 0·25% in a bland, non-irritating, hydrophilic base, is available in tubes of 5 grammes.

On application we will be pleased to supply you with literature and samples for clinical trial.

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Dequadin was found to be a safe and successful antibacterial agent in conditions of the skin in which infection was present together with eczematous changes . . . .*

Prednisolone possesses the same anti-inflammatory, anti-allergic and anti-pruritic properties as hydrocortisone but it is considerably more active for topical application. It has a greater solubility than other corticoids in common use and thus has a more rapid action and is less irritant to tissues.

In 37 cases of atopic eczema, intertrigo, pruritus ani et vulvæ and neurodermatitis treated with combined Dequadin and Prednisolone there were no failures and no cases of sensitivity.*

* Coles, R. B., et al. (1958): *Brit. Med. J.*, 2: 1014.

PREDNISOLONE

- **highly active topical corticoid**
- **anti-inflammatory and anti-allergic**
- **greater solubility; rapid action**

DEQUADIN

- **antibacterial and antifungal**
- **diminishes risk of the development of resistant strains of staphylococci**
- **activity is not diminished in the presence of serum**

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